AMERICAN
JOURNAL OF SURGERY

VOL. XXI SEPTEMBER, 1907. No. 9

# TUBERCULOSIS OF THE CERVICAL LYMPH NODES.

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CHICAGO.

Our progress relative to this condition has been so favorable and, comparatively speaking, so rapid, that I have been prompted to present the subject at this time.

The advances that have been made in regard to the etiology, diagnosis and treatment of this condition have been so marked, that I shall discuss the subject principally from these points of view.

In ten per cent. of a large number of tonsils and adenoids removed during life, evidences of tuberculosis have been found. The majority of these examinations were on tonsils and adenoids removed from children. When one considers that in many of these cases the tubercular lesions might have been healed at the time of operation, the percentage of cases in which tuberculosis was found is smaller than is actually the case. As to whether these foci are primary or secondary, it is hard to say during life, but it will be fair to assume that they are primary in many cases. The best manner in which to explain the frequent implication of the lymphoid tissue of the tonsils and pharynx, with transmission of the infection to the cervical lymph nodes, is that young children inhale the dust which contains the bacilli in crawling about on the floor, and that these bacilli lodge in the tonsils. The organisms may remain latent in the cervical lymph nodes for years and then suddenly start up actively.

Those who are interested will find an excellent review of the literature of the portals of infection in tuberculosis of the cervical lymph nodes in the articles of Lartigau and Nicoll, of Koplik, and of Kingsford. This condition of tonsillar tuberculosis is most frequent in children, but may exist in adult life. If I were to enumerate the various portals of entry according to their frequency, in tuberculosis of the cervical lymph nodes, I should say: (1) The faucial tonsils. (2) The pharyngeal tonsils or adenoids. (3) A tuberculosis of the temporal bone, with resultant otitis media. (4) Through carious teeth. (5) Tubercular lesions of the buccal and nasal mucous membranes. Of these, the last-named are so rare that they may be left out of consideration. The third is so self-evident that its recognition clinically is easy. The fourth form the atrium in a small proportion of cases. We are most apt to overlook the importance of the first and second (tonsils and adenoids), as atria of infection in our treatment of tuberculous cervical lymph nodes. We can do much to prevent a secondary condition through the enforcement of the same principles as are applied in the prevention of pulmonary tuberculosis. These are referred to under treatment.

George B. Wood has recently confirmed some of the above views by injecting colored fluids into the faucial tonsil, finding that it passed through the peritonsillar lymphatics into a node which he terms the tonsillar (one of the deep cervical group), situated in the angle between the internal and anterior jugular vein. Personally, I have made it a practice to have every case examined, if possible, before operation by a specialist, as to the existence of diseased faucial tonsils complicated, or not, by the presence of adenoids. It may be of interest to relate an instructive experience in this connection.

I operated upon a boy of ten for tubercular cervical nodes, without paying any attention to the condition of the upper respiratory tract. At the time of the first operation I considered that I had been very thorough in removing every palpable node with the surrounding fat. He returned one year later with almost as many enlarged nodes as at the time of the first operation. I advised and performed a second extirpation, combined with the removal of adenoids and enlarged tonsils. No recurrence has taken place up to the present time, about five years after the second operation. I do not believe that sufficient attention has been paid to removing these primary atria, and at the present time do not consider an operation thorough, especially in children, without such an examination of the nose and throat. The removal of the tonsils and adenoids is now combined with the extirpation of the lymph nodes as a more or less routine measure.

With reference to the diagnosis, our notion of tu-

bercular enlargements of lymph nodes has generally been that they occur in a chronic form only, and that the entire course of the disease was one which extended over a period of months to years. There seems to be no question that there are cases which run a very acute course, so that caseation occurs within two or three weeks after the onset of the disease. The following case illustrates very well this point:

During the past two or three winters we have had an epidemic in Chicago of acute enlargement of the cervical nodes on both sides of the neck, accompanied by rise of temperature and local inflammatory signs. In some of the cases the temperature would be persistently high, varying between 101°-104° for a period of two or three weeks, so that one was often in doubt as to the possibility of suppuration having occurred. The majority of these cases are, no doubt, the result of an influenzal inflammation of the lymph nodes—a disease which was described in 1899 by Pfeiffer as a complication of influenza, and called Pfeiffer's disease or glandular fever. During the past winter I have had occasion to see a large number of these cases in consultation, and two of them have interested me greatly. A school boy of fifteen had an acute bilateral enlargement, involving many of the internal jugular nodes. One of them showed distinct fluctuation about five weeks after the onset of the disease. I evacuated typical cheesy pus. A radical extirpation of the nodes was undertaken, and revealed the presence of a very extensive involvement of many nodes along the internal jugular. This case had begun acutely unlike a tubercular form, with a temperature of 102°, and all of the signs of the ordinary Pfeiffer fever.

I saw a second case in a woman, thirty years of age, with caseation of the glands in three weeks. In neither of the cases was there any history of previous tubercular disease in the patients themselves, or in the family. The glands were from the first much harder than in Pfeiffer's disease.

There is another condition which must be taken into consideration in the differential diagnosis. These are cases to which Fisher has called our attention, and termed the pseudoleukemia form of tubercular lymh nodes. There is not only an enlargement of the cervical nodes, but of the axillary and inguinal as well. The enlargement takes place gradually, and there is no tendency to softening, as in ordinary tuberculous nodes, or to the formation of adhesions between the adjacent ones. The entire clinical picture resembles greatly that of Hodgkin's disease, but differs from it in the fact that the enlargement of the nodes is not as progressive as in pseudoleukemia, and rarely reaches the enormous size of the latter, nor is there any involvement of the mediastinal nodes. In one of these patients a number of typical tuberculous nodes were extirpated on the left side of the neck, three years ago. About one year after the wound had been healed, the patient presented himself on account of a recurrent enlargement of the nodes on both sides of the neck and in the axillæ. The examination showed a condition which it was practically impossible to differentiate from an incipient Hodgkin's disease, and if it had not been for the absolutely reliable history obtained, it would have been impossible to make a diagnosis.

In the second case the enlargement of the lymph nodes was very marked on both sides of the neck and in the axillæ, as well as in the inguinal region In this case, three years before, Dr. A. E. Halstead had removed a large number of typical tubercular nodes. There has been no tendency to breaking-down, and under the influence of the x-ray a very marked improvement has occurred.

Reference has been made to the acute and pseudo-leukemia forms in order that further observations may be made. I need to mention only briefly the other forms of lymph node enlargements from which the tuberculous must be differentiated. They are the true Hodgkin's or pseudo-leukemia, the syphilitic, chronic non-tubercular hyperplastic nodes, the glands of lymphatic leukemia, lymphosarcoma, and secondary carcinoma.

Much can be accomplished by educating the masses regarding a knowledge of the general principles of hygiene. Those suffering from pulmonary tuberculosis must be cautioned not to expectorate on floors or public conveyances, since the pulverized sputum is often first arrested in the tonsils and other lymphoid tissues of children and young adults. Both poor and rich must be taught the necessity of cleanliness in the modern sense of the word. A free circulation of air in living, and especially in sleeping apartments, will do much to keep the tonsillar ring in a good eliminating condition. The author is of the opinion that we can accomplish good through early and radical removal of diseased tonsils, and of adenoids when found, since these are the most frequent atria of infection.

If an operation should be deemed inadvisable or is objected to, the ideal treatment is to send the patients to the mountains or to the seashore. If it is found impossible to follow such a plan, the use of tonics—cod liver oil, guaiacol, iodid of iron—is of aid, provided that the process is not a very active one. If the latter exists, no medical treatment will

be of much avail. I do not believe that the external use of iodin is of any benefit. In regard to the x-ray, I am frank in saying that my experience does not warrant an expression of opinion.

A study of the statistics of various authors will convince one that a thorough and radical extirpation of every enlarged tuberculous node will not only give the best prospects of immediate immunity, but also of freedom of development of foci in the lungs, bones, peritoneum, kidney, and testis at some period in the future. What do the statistics of operative interference show? In 745 cases collected by Blos from eleven sources, over 54 per cent. showed permanent recovery. Six years was regarded as ample time after operation to be considered a permanent result. Of 140 cases collected by Jordan, 20 showed involvement of the lung before operation, and at a later examination 16 of these were well and free from pulmonary disease. Of the 58 cases (out of a total of 143 operated on) collected by Mitchell, 45, or 77.6 per cent. were well, with no local or other recurrence, and with negative lungs, after periods varying from one to thirteen years.

I agree with the opinion of Dowd, that if the nodes are thoroughly extirpated there is no recurrence in 75 per cent. of the cases, and ultimate recovery in 90 per cent. Both of these can be even increased by the systematic removal of the tonsils and adenoids at the time of the lymph node extirpation.

I will describe briefly the method of operation uniformly employed in 50 cases. If tonsils or adenoids are to be removed, this operation is performed after the extirpation of the nodes, in order not to infect the field of operation. The patient lies flat upon his or her back, the shoulders are raised by a small sand-bag so that the head falls back. The chin is turned to the side opposite to that upon which the incision is to be made. Of all the different forms of incision, I prefer the longitudinal, if a large number of nodes are to be extirpated. I have never found that the transverse incision, as recommended by Dowd, gave the exposure of the deeper structures which a longitudinal one does. The latter is made over the middle of the sterno-cleido-mastoid, and can be extended at its upper and lower ends in an anterior and posterior direction to remove the nodes in the submaxillary and supraclavicular regions respectively. If sinuses exist, their walls are curetted and the skin edges excised. If a large abscess is present, I prefer to open it under Schleich anesthesia a few days to a week before the radical extirpation, in order to avoid an infection of the entire operative field with tubercle bacilli. The radical operation begins with the above longitudinal incision carried through the skin and deep fascia until the anterior border of the sterno-cleido-mastoid muscle is exposed. This is always the first landmark, and by adhering to the routine of following the anterior and posterior border of this muscle much time will be gained in getting one's bearings, so to speak, as to the relation of the enlarged nodes to the principal vessels and nerves.

The deep cervical fascia is thoroughly divided with a scalpel and the sterno-cleido-mastoid muscle freed along both of its borders. Great care is taken to catch every bleeding point at once. The majority of the superficial and many of the deeper vessels require no ligature, the exception being the external jugular vein, which it is impossible to avoid severing. When the edges of the wound are retracted, the extirpation proper is begun by either catching the node with an artery forceps, or, better still, with a sharp-pointed retractor, and the node drawn toward the surface. I have found a blunt-pointed, short-bladed curved scissors far better than a Kocher dissector. One can work the node loose from its adherent surrounding tissue, and at the same time cut toward the capsule in separating these adhesions, without constantly changing instruments. I never employ a scalpel after the sterno-cleido-mastoid borders have been exposed. If the nodes are adherent to the internal or anterior jugular vein or to the carotid artery, no accident ought ever to happen if one uses traction, combined with blunt dissection, and an occasional cut of the capsule. I have repeatedly exposed the internal jugular vein from the chin to the clavicle without ever having injured it. It is of great importance not to pull a node away from the jugular vein and then to cut between. If one does, the jugular vein, being very elastic, is pulled out comparatively easily. By inserting the blunt scissors between the vein and the node, the latter can be easily stripped from the vein wall. One will encounter some obstinate bleeding from arteries and veins which supply the nodes themselves. Leaf has called attention to a condition I have myself occasionally seen. A node which is adherent to the internal jugular vein will have a short, wide vein running through it, emptying directly into the larger vessel. It is impossible to avoid cutting this communication, and the hemorrhage may be so severe as to cause one to think that the main vessel has been cut. If this branch is too short to be ligated, it is best to transfix the wall of the jugular with a non-cutting needle armed with catgut, and thus by applying a parietal ligature, check the hemorrhage. The upper set of deep cervical

nodes is best extirpated by pulling the muscle backward, and the lower, including those lying in the posterior angle of the neck, by pulling the muscle forwards. The position of the spinal accessory nerve must always be remembered. It emerges from the sterno-mastoid at its middle, and passes almost transversely across the posterior triangle to enter the trapezius. It is often embedded in the midst of enlarged nodes, and easily severed in enucleating them at this point. I have often identified it by pinching it lightly with an artery forceps, and then watched the trapezius muscle contract. When severed, the patient is unable to raise the injured shoulder as high as the normal, but this can be compensated for in the course of time. On the left side one must bear in mind the position of the thoracic duct. I cut this in one case not long ago, which had been previously operated upon by another surgeon, so that extensive cicatricial tissue existed. At the first dressing a considerable amount of thin, milky fluid escaped, but by packing the wound firmly this ceased within a week. This treatment is usually effective, suture being seldom required. In the majority of cases of injury of the thoracic duct so far reported, only one of the main branches has been wounded, so that packing the wound tightly usually suffices. A thorough removal of all fat will be of great aid in preventing recurrence.

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## GONITIS.

**A flexed, swollen, and indurated knee in a child should always be considered tuberculous unless definitely proved otherwise. In adults also, such a tuberculous invasion should first be considered; then septic, gonococcic, streptococcic, pneumococcic, or** other infection. Non-infectious arthritis with effusion may follow any form of traumatism, but while the swelling may be great, it is not so indurated or doughy as that in tuberculosis. The effusion and tenderness following sprains and the slipping of semilunar cartilages, of floating bodies, of fatty or otherwise degenerated synovial fringes, will all have definite histories and varying grades of effusion and pain, but will ordinarily present less induration than tuberculosis.—DeForrest Willard in the *N. Y. Medical Journal.*

# SOME PRACTICAL POINTS ON PROVIDING FOR END-BEARING STUMPS IN AMPUTATIONS OF THE LOWER EXTREMITY.*

BY GEORGE L. MARKS,
NEW YORK.

I.

Amputation of the toes and posterior part of the os calcis (Fig. 1) produces very bad results. The remaining segment of foot has impaired functions, and the parts where most pressure comes are so greatly scarred and sensitive that walking is difficult and more or less painful. The surface of the heel becomes abraded under the slightest provocation, the anterior surface of the foot encroaches on the padded front of the shoe and becomes chafed and sore. The adjustment of pads has to be repeated several times a day and the frequency with which shoes have to be renewed incurs expense and annoyance.

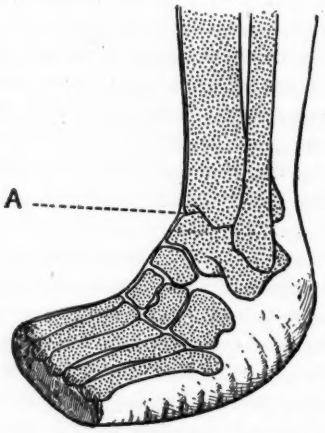



Fig. 1.

Amputate in the ankle after Syme's method, if a healthy heel flap can be obtained; otherwise, amputate at the junction of the middle and lower thirds of the leg. The patient can then be fitted with an artificial part, that will be neat in appearance, light, comfortable to wear, helpful and inexpensive to maintain.

II.

It is productive of every bad results to amputate above the insertion of the ankle joint flexors (Fig. 2). If the tendo Achilles is not opposed, it will contract and draw the heel away from its normal position. Tenotomy will not prevent this trouble, for the tendon will soon unite and will then be fully as persistent in influencing the calcaneum as before.

* Written, by request, for the AMERICAN JOURNAL OF SURGERY.

If the anterior of the calcaneum is brought to point downward so that it is on a line with the center

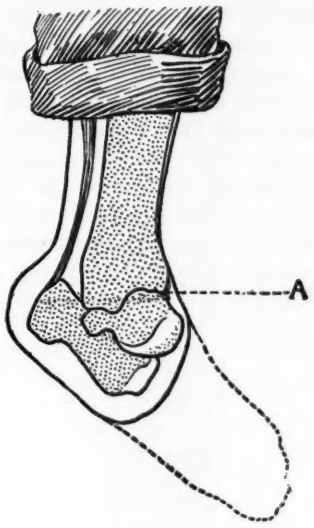



Fig. 2.

of gravity of the body, hope can be abandoned for a heel-bearing stump. If, therefore, there is a chance that the tendo Achilles will not be properly opposed, the amputation had better be in the ankle after the method of Syme or Pirogoff.

III.

The most troublesome stump for artificial leg purposes is the one that reaches very close to the malleoli (Fig. 3). The small part of the ankle above the joint has very little tissue and is scantily nourished at the best. The stump reaching to that point is susceptible to the slightest interference with the circulation. Pressure near the popliteal space will either congest or impoverish the end. Usually two or more inches of such stumps have to be removed sooner or later.

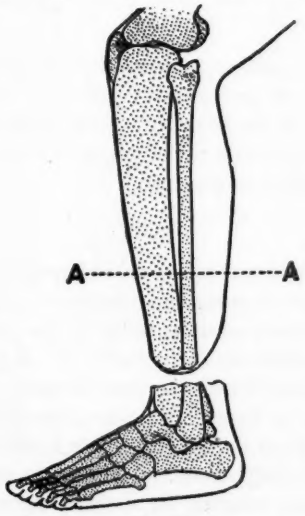



Fig. 3.

Amputate in the ankle after the Syme or Pirogoff method, provided a heel flap can be obtained; if not, amputate at the junction of the middle and lower thirds on the line A—A.

IV.

Surgeons observing extreme conservatism occasionally remove all the bones of the foot except the astragalus (Fig. 4). The writer has never known permanently good results to follow the retention of that bone when the rest of the tarsus is removed; there appear to be conditions in such a stump that

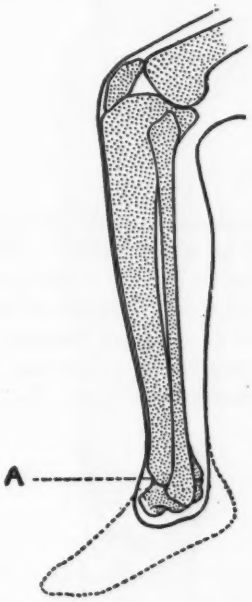



Fig. 4.

invariably make it impossible to apply any weight to the end.

Amputate in the ankle after the Syme method, if a healthy heel flap can be obtained; otherwise amputate at a point of election.

Moschcowitz's modification of Syme's operation, which by plastic surgery provides a bone flap with the end of the external malleolus, is productive of good results and cannot be too highly commended.

V.

Failure to remove a little additional tissue at the termini of the wound, especially in ankle joint amputations, will result in a "puckering" of tissue on the sides of the stump (Fig. 5). The latter thus becomes irritated by the slightest rubbing against the walls of the socket of the artificial leg, unless

pockets are provided, and when they are, the artificial leg is bulky and cumbersome.

Fig. 5.

VI.

An amputation should always be made well away from lacerated or infected tissue. The importance of saving a part of the foot is not great enough to take the risk of trying to obtain a serviceable flap out of crushed or lacerated material. Stumps of that character are rarely end-bearing, and as a rule call for subsequent amputation (Fig. 6).

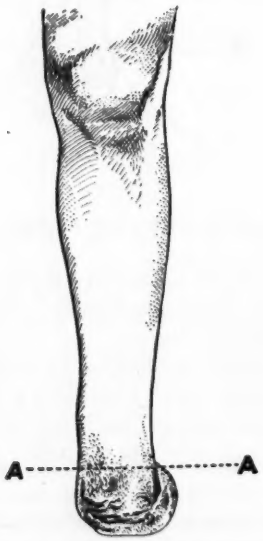



Fig. 6.

Better amputate at the ankle (A-A), providing a heel flap can be obtained; if not, amputate at point of election in the leg.

VII.

The main object in amputating at the ankle joint is to produce an end-bearing stump on which the patient will be able to rest his entire weight, and unless this is obtained the amputation had better be made at the point of election in the leg. An end-bearing stump must have a healthy, well-cushioned flap, without any cicatrix across the end. In a typical Syme or Pirogoff amputation the cicatrix is always laterally across the front a little above the end where it should be, but in some modifications, the cicatrix is placed across the end directly on the surface where weight is to be applied. It is rare that

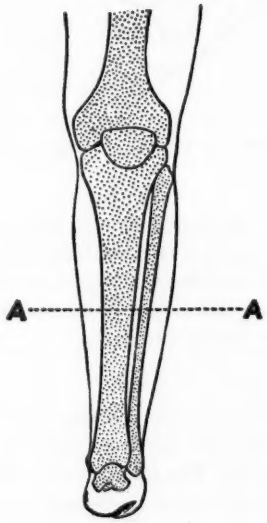



Fig. 7.

a cicatrized surface becomes strong enough to endure weight or pressure. (Figure 7.) The removal of the foot at the ankle, or a part of the foot at the instep, is a mistake if the flap is of such a character as to object to pressure.

VIII.

Never amputate below an involved part; a long stump is not of enough importance to take the risk. Figure 8 shows an amputation at the ankle on account of elephantiasis in the foot. A part of the leg was affected with the same disease. It was assumed that by removing the foot, the disease would disappear from the leg, too much importance being given to a long stump. The patient suffered for several years, wearing an artificial leg of unsightly proportions, and with indifferent success. Finally, despairing of better conditions, he had the leg amputated at the point of election, shown by A—A.

With an artificial leg he has since been able to walk about conveniently.

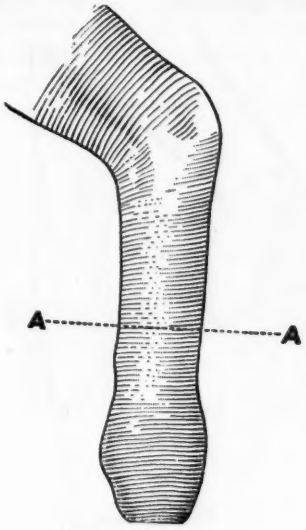



Fig. 8.

IX.

In amputating a leg, care should be exercised in removing as much of the fibula as of the tibia. Occasionally in a comminuted fracture the ends of the broken bones are but slightly trimmed, and if the fracture of the tibia is above that of the fibula, the fibula will be left too long. (Figure 9, *a*.) Unfortunately the fibula will not hold tissue as well as the tibia and when an artificial leg is worn, the end of the fibula becomes denuded.

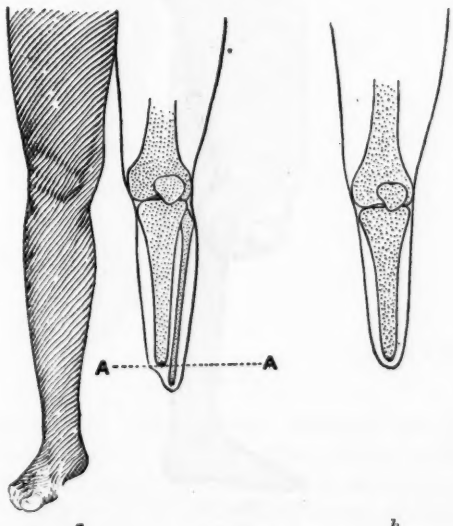



Fig. 9.

The fibula is sometimes removed in its entirety, since it can perform no function whatever in operating an artificial leg. (Figure 9, *b*.) Its absence is not to be regretted, but its removal leaves a cicatrix running the entire length of the external aspect of the stump, which is more of an objection than the presence of the bone.

Bier's osteoplastic operation, whereby a bone flap is provided, is productive of an end-bearing stump and is to be highly commended.

X.

The importance of amputating above an injured or lacerated part may be instanced by reciting the case from which figure 10 was sketched. The patient was treated for a number of years for necrosed tibia. The bone had been scraped, and every effort made to grow periosteum and tissue, and effect a healing. Years passed with no good results. The young man met with an accident that crushed the foot of the same leg, necessitating amputation. The fact that the necrosed tibia had for years been a source of suffering and solicitude was entirely ignored, and the amputation was made at the ankle joint. An artificial leg was applied and worn for several years with fairly good effect, but the diseased tibia continued to give trouble, refused to heal and at times caused intense pain. Finally the patient, concluding to get rid of the annoyance, had the leg amputated above the affected part. In a month's time the stump was healed and an artificial leg of modern construction was applied, and the patient got about in the most comfortable and advantageous way. He has had no trouble since.

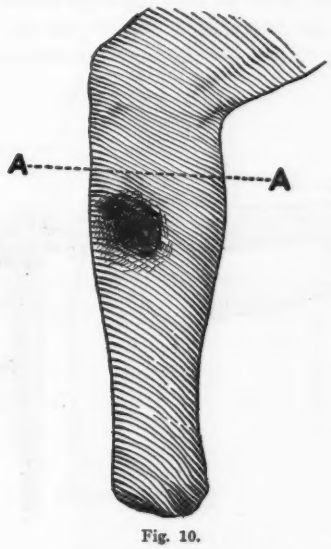



Fig. 10.

While stumps reaching to the ankle articulation or to the point of election are desirable, yet they

are not so important as to justify the subjection of the patient to doubtful experience which may mean years of suffering and expense. As a matter of fact, a stump having four or more inches of tibia is capable of controlling the knee joint of an artificial leg and may be said to be long enough.

XI.

Amputation should not be done at any point below the knee when that joint is ankylosed, whether in flexion or extension.

If there is no reasonable chance that mobility of the knee joint can be restored, the amputation should be in the knee articulation, for all that is otherwise left of the stump below the knee can be of no use in operating an artificial leg. (Figure 11.) The articulation of an artificial knee should be on a line with the articulation of the natural. Therefore, if amputation is done below an ankylosed knee

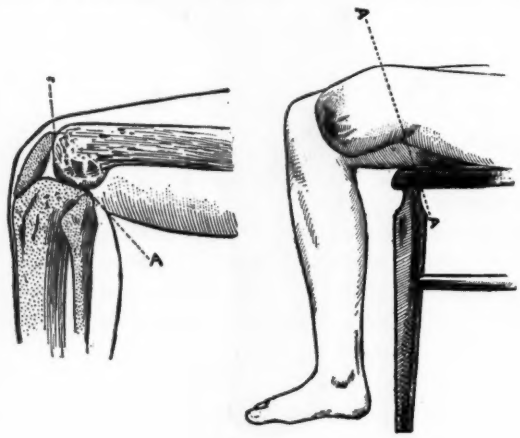


Fig. 11.

there will be necessarily a conspicuously elongated thigh when the patient is sitting if the ankylosis is in extension; and in case of ankylosis in flexion, the stump will protrude from the back of the thigh of the artificial leg. The leg of the trousers must therefore be very wide and unsightly in order to cover the artificial leg and bent knee.

XII

After amputation through the leg, there is a very strong tendency in a knee joint to contract, lessening the range of motion. (Figure 12.) To avoid this, the patient should be required to flex and extend the knee joint frequently after the stump has healed, and if a slight contraction has taken place, a little additional tension should be applied by the hands to urge further extension.

Contracted hamstrings usually relax under the influence of an artificial leg, but this change in the knee calls for a corresponding change in the artificial leg, all of which can be avoided by a little precaution at the right time.

Fig. 12.

XIII.

Tissue flaps can be too many,—deep folds of tissue require care to keep clean, they become receptacles for effête matter from the skin and dust working through the clothing, causing irritation and excoriation. (Figure 13.) Flaps should be as few as possible and should provide smooth surfaces to the stump.

Fig. 13.

XIV.

In the amputation of both legs, either above or below the knees, it is an error to sacrifice stump

(above the point of election), in order to have both of the same length. (Figure 14.) It is possible to have one stump too long and the other too short, but this is no reason why one stump should be made short because the other has to be. Artificial legs can be adapted to stumps of any length and it is a

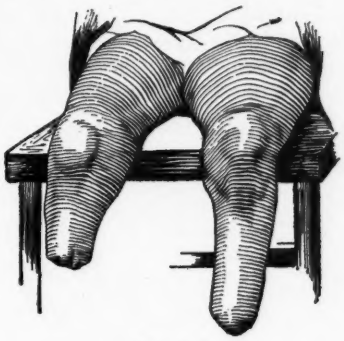


Fig. 14.

matter of no consequence if there is a difference in length.

XV.

It was customary in former days to remove the condyles of the femur in the knee joint amputations.

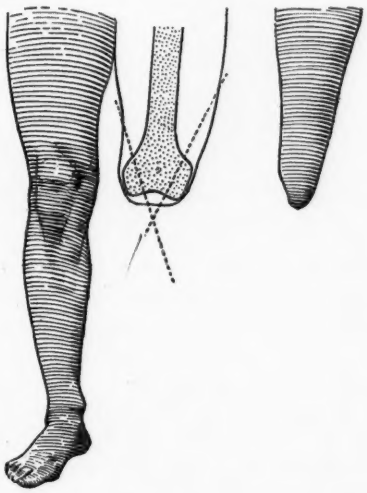


Fig. 15.

(Figure 15.) This practice, however, has somewhat drifted into disfavor and it will be fortunate when all surgeons will look upon it as undesirable. The condyles of the femur afford means for holding an artificial leg in place without resorting to extensive shoulder suspension. A knee joint stump with the condyles present is preferable to a knee joint stump tapering from the perineum down.

XVI.

If the bones at the knee joint are hopelessly displaced, laterally or otherwise, and an amputation is necessary to remove a diseased or crushed foot, it had better be in the knee articulation. Otherwise the dislocated knee having its functions impaired, will fail in operating the knee articulation of an

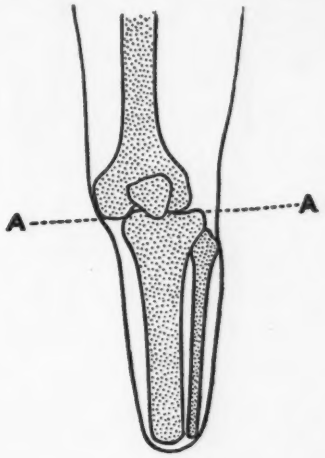



Fig. 16.

artificial leg and the wearer will be at great disadvantage. (Figure 16.)

XVII.

Redundancy of flaps on the end of any stump, either tibial or femoral, is a source of annoyance,

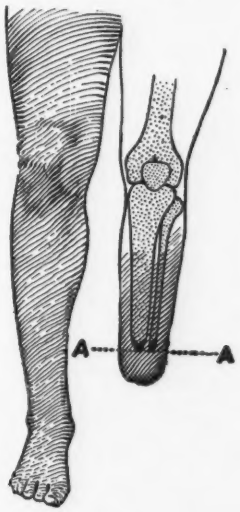



Fig. 17.

and should be avoided. A mass of tissue hanging from the end without muscular control, will flop about, striking the sides of the socket of an artificial leg and become excoriated. (Figure 17.)

An effort should be made to have only enough tissue to cover the end of the stump substantially.

XVIII.

After the stump has healed, it should be bandaged and kept so until an artificial leg is applied, otherwise it will take on temporary growth. (Figure 18.) Adipose tissue or edema will develop very quickly and cause complications which incur annoyance and expense. As soon as an artificial leg is applied and worn, atrophy is induced, and a large flabby stump will reduce considerably, necessitating either a new fitting in the artificial leg or filling up of the old socket,—all of which might be avoided by the use of tight bandages.

Fig. 18.

XIX.

The writer once had under observation a man with excised knee and amputation through the tibia, as shown in figure 19. The excision of the knee was made for a pathological condition, and the amputation through the tibia was done subsequently on account of traumatism. Why the surgeon amputated through the tibia (instead of through the femur), giving the patient what appeared to be a long thigh stump, is beyond understanding.

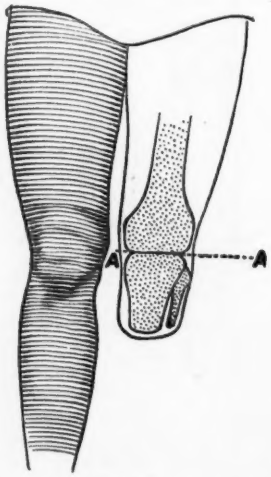



Fig. 19.

XX.

Amputation may be made at the hip joint, with the femur disarticulated, or a very little of it left, thus providing no stump, or one so short as to be unavailable, without condemning the patient to use crutches the rest of his life. (Figure 20.) The pelvic socket artificial leg recently devised, meets the requirements of this case.

Fig. 20.

XXI.

An artificial leg cannot be applied too soon after the stump is healed in traumatic cases. Waiting entails a loss of time, and permits a stump to become flabby and enervated from inactivity.

The presence of a small sinus on the end of the stump, which sometimes refuses to heal, is not necessarily a reason why an artificial leg should not be applied. As a matter of fact, the wearing of an artificial leg puts no pressure on the ends of the stump, which (except in disarticulations) practically hangs in space. In wearing an artificial leg, the stump is stimulated by the work it is performing, the circulation becomes more active and in a great many cases this induces a stubborn sinus to heal substantially and permanently.

XXII.

Finally, the writer wishes to take this opportunity to express the opinion, based on repeated obser-

vation, that the resection of the astragalus and os calcis, and the union of the cuboid and scaphoid with the tibia and fibula (figure 21), produces as bad condition as exist in extreme talipes equinus, and that the Wladimirow-Mikulicz operation, therefore, cannot be too strongly condemned. No person can stand or walk any length of time on the limited surface of the ball of the foot; that part will soon become covered with corns or sores, frequently de-

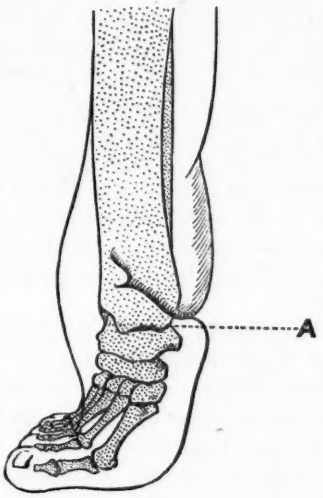



Fig. 21.

veloping abscesses. It must be remembered, too, that the operation elongates the leg two or more inches, necessitating an appliance on the opposite foot to bring about an equality in the length of the two extremities. The expense of two appliances, one for the foot that has been operated on, and the other for the opposite, is much more than the cost and maintenance of an artificial leg. It is better to amputate at the ankle, if a heel flap can be obtained, and, if not, at a point of election in the leg. The patient will fare much better with an artificial foot, will be subjected to less expense and far less inconvenience.

### JOINT IMMOBILIZATION.

It has been abundantly proven that healthy joints may remain fixed for a number of months and full functional restoration speedily follow their release. . . . . There has been accumulated a vast amount of unimpeachable evidence, showing that diseased or injured joints soon become firmly locked in the position in which they are fixed by contracted muscles, or mechanical device.—W. D. HAINES in *The Lancet-Clinic.*

## HEADACHES, CAUSES AND TREATMENT FROM THE AURIST'S STANDPOINT.*

BY SEYMOUR OPPENHEIMER, M.D.,
NEW YORK CITY.

While pain is an essential symptom of all acute inflammatory aural affections, it is usually clearly localized to the region of the ear and in nowise partakes of the character of a headache, so that it must be clearly differentiated from the latter. Eliminating, therefore, from this discussion, the subjective sensation of pain localized to the aural region and which in no manner can be considered as partaking of the nature of a headache, one finds that headache is rather infrequent as a symptom of aural affections, unless complications exist such as intracranial changes, which are frequently accompanied with a headache that may often be considered the main subjective symptom.

Compared with the frequency of this symptom as a result of both direct and reflex changes in other highly specialized end organs such as the eye and olfactory tract, headache is far less frequent from affections of the ear. When it is associated with changes in any portion of the auditory tract, it may present almost insurmountable difficulties in establishing the relationship between the cause and effect and not infrequently when such a relationship is supposed to exist, it will be found by the course of subsequent events, that the headache bore no relation at all to the auditory affection.

When headache can be ascribed to an aural basis, it implies as the cause of the pain, either an increased pressure from confined pus, or débris, such as cholesteatomatous material; or congestion from an acute, or chronic inflammation involving a disturbance of the cranial circulatory equilibrium, while in cases where the headache seems to be associated with eustachian obstruction, or an otosclerosis, one must possess considerable doubt as to the rationale of the process, or that other local and general conditions are not contributing factors to a large extent, acting in a casual capacity. In close association with the cause of the headache, is its significance especially when occurring during the course of an otitis media purulenta, whether acute or chronic and more so during the course of the latter, as under such circumstances it may signify serious impairment of drainage, or an extension of the purulent inflammation either to the sinuses, the meninges, or to the brain substance itself.

Of the various pathologic conditions involving

* Presented at a symposium on "Headache," at the East Side Physicians' Association, May 17, 1907.

the auditory tract which may be productive of more or less headache other than the localized pain directly associated with them, those of the external auditory canal may be considered first. Their importance is but trivial as compared with inflammatory conditions situated deeper in the temporal bone.

Impacted cerumen in the external auditory canal when accompanied with swelling of the mass and especially with an added dermatitis from excessive pressure, may at times cause a feeling of discomfort in the head amounting to actual headache, especially if the patient is at all of a neurotic temperament. The association of the headache with this condition, can be readily perceived when removal of the offending mass produces a disappearance of the headache within a very short time. Another condition which is not infrequently associated with a diffuse or lateralized headache more or less limited to the affected side, is a furuncle of the auditory canal and while in this condition the local pain may be most intense, yet a definite headache is often associated with it; all the symptoms vanishing as a rule, when the furuncle has been opened and the contained pus evacuated.

When headache is associated with minor grades of eustachian obstruction the result of catarrhal changes of the mucous lining of the tube with the presence of nasal hypertrophies, adenoids or other obstructive nasopharyngeal changes, a partial relief at least, may be experienced when the tube is opened by inflation or catheterization, showing that the tubal occlusion plays some part in the etiology of the headache. The pain, or more frequently the sensation of dulness, or discomfort about the head, is rarely intermittent as in other forms of headache, but is rather apt to be continuous, excepting when the tube has been rendered patulous by treatment, when the heavy feeling in the head is relieved until the occlusion again becomes pronounced. In such cases, however, in order to obtain a complete and permanent cure of the headache, it is essential that attention be paid to the nasopharyngeal lesions and unless the adenoids are removed, the nasal passages made patulous and catarrhal changes in the neighborhood of the tubal openings materially modified, the headache will recur, or remain more or less permanent.

In otosclerosis, chronic adhesive otitis, or catarrhal changes in the middle ear, it is most difficult to clearly establish the relation of any concurrent headache with the tympanic or inner ear lesions, for such conditions from the nature of the pathological changes present, are essentially characterized by the lack of active inflammatory alterations and pain of any sort is conspicuously absent. There are a certain number of cases as pointed out by McBride, with slight middle ear catarrh, in whom the chief complaint is a rather generalized headache, with but slight changes in the hearing and in whom some relief is obtained by treatment directed to the removal of tubal obstruction if such should exist. It will be found, however, that these patients are, as a rule, of a neurotic type, and but little importance can be attached to either the results obtained, or to the relation of headache and aural trouble. A neuralgic headache may, however, undoubtedly be associated with chronic aural sclerosis and it usually involves the side of the head, or rarely may be bilateral; general treatment, or the use of analgesics, are seemingly of little or no value, but massage of the membrana tympani, or any of the usual methods employed in treating this aural condition, are followed by relief of the headache in some instances.

In acute otitis media with the development of a purulent, or serous exudation into the tympanic cavity, the pain in the ear may be so severe as to not infrequently irradiate over the side of the head and constitute a true headache, especially in cases where the membrana tympani is thickened and the fluid can find no exit, so that it is retained under great pressure. The rationale of the development of such a headache is self-evident and its prompt disappearance under proper treatment, which is evacuation of fluid by free incision through the tympanic membrane, evidences the intimate relation of cause and effect. Much more serious, however, is the persistence of headache on the affected side, remaining after paracentesis of the drum, as it not infrequently shows an extension of the purulent process to the mastoid tissues and it may at times be the most prominent symptom complained of by the patient.

Headache developing during the course of chronic suppurative otitis media, should occasion grave concern and careful investigation, until its relation to the aural disease can with surety be eliminated, or if the relation of this symptom with the disease present be confirmed, active measures be taken to relieve it. The importance of headache in a patient with chronic aural suppuration, cannot be too strongly impressed, for while in many instances it may mean nothing and be the result of causes other than the aural affection, yet at times it is an all important symptom of serious damage occurring in the mastoid process, or in other portions of the temporal bone and only by the prompt recognition of

its importance and the employment of active surgical measures, can serious or even fatal changes be prevented.

This is especially so in such cases where the aural discharge is very slight, so that the patient considers it of little moment and unless the ear be carefully examined, the relationship between the headache and intratympanic morbid process will remain undiscovered. In such instances, the headache may be purely frontal in type, or involve diffusely one side of the head, but not sharply defined as a true migraine and may be continuous for many weeks, with acute, severe exacerbations occurring at irregular intervals. Such patients as a rule do not refer the pain to the region of the ear, although a feeling of discomfort may be present here and examination will usually reveal the presence of granulation tissue and carious areas of the tympanic walls especially around the aditus ad antrum.

When there is considerable pus and especially cholesteatomatous material filling up the tympanic cavity and adjoining spaces, the pressure caused by the débris not infrequently produces a dull, heavy headache, or sensation of discomfort of the entire head and when for any reason added swelling of this material occurs, the headache becomes at once aggravated, so that for a time it may be unusually severe. A diagnostic feature of importance in establishing the relation of such a headache to the aural affection, is found by the marked increase of pain when liquids are dropped in the ear and especially when the patient gets water in the tympanum, as it produces considerable increase of bulk of the cholesteatomatous material and its resultant pressure.

In those cases where there is a scant discharge from the ear and headache is a prominent symptom, careful examination will in the majority of cases disclose other symptoms demanding operative procedures not for the relief of the headache, but to save the patient from a greater peril of intracranial infection. In the presence of carious bone and granulation tissue, its removal as far as possible through the external auditory canal will sometimes afford temporary relief. Permanent results will not often be obtained, as in nearly all such cases the mastoid is more or less extensively involved and an operation upon this part becomes necessary. Where there is cholesteatomatous material in the tympanum sufficient to interfere with drainage and to produce headache, temporizing by local applications, or removal of particles of débris through the external canal is futile. Thorough operation, throwing all the cavities affected into one clean, easily accessible space is the only treatment to be considered.

While it is impossible here to more than mention the presence of headache as a part of the symptom-complex of the intracranial complications of suppurative otitis, it is a most important symptom when present and in conjunction with a suppurating ear especially of long standing, it should be carefully investigated, especially if the headache be localized over the temporosphenoidal lobe of the cerebrum, or posteriorly over the region of the cerebellum.

45 EAST SIXTIETH STREET.

## THE TREATMENT OF FRACTURES OF THE TIBIA, FIBULA, FEMUR AND CLAVICLE.

BY JAMES H. DOWNEY, M.D.,
GAINESVILLE, GA.

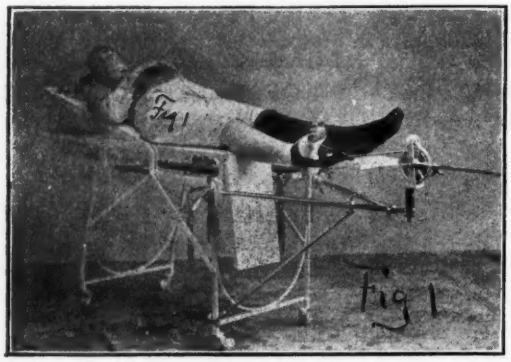
The frequency with which we see, in every community, persons with varying degrees of deformity from these fractures, has led me to study them very closely to determine, if possible, whether the deformity results from the carelessness of the physician, the inability of human assistance (trained or otherwise) to hold the parts in position until a permanent dressing is applied, or the failure of the dressing (splints) to hold after being applied. These results occur in the hands of our best surgeons; therefore, mere carelessness is not the cause. But a few experiences with human assistants have taught me clearly that, even with the patient under anesthesia, a man cannot keep up a steady, straight pull for a sufficient length of time to properly apply a splint to one of these fractures. On further study of the problem, I have become convinced that a dressing that affords the requisite amount of immobilization, without a fixed position of the patient, is not taught in our schools, text-books or journals.

Everyone who has tried to hold one of these fractures in position until the dressing is applied will, I think, agree with me that it is almost impossible. None of the methods taught meet the objects so plainly laid down by Scudder of Boston—perfect reduction, immobilization and restoration of the limb to normal usefulness.

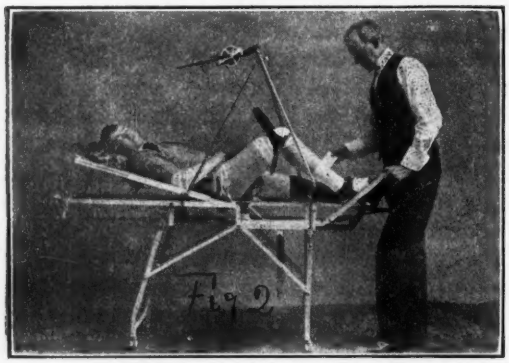
The first prerequisite is perfect reduction. I have devised an apparatus in the form of an operating, orthopedic and fracture table that will do this perfectly, hold perfectly and give perfect access to the limb or body without any movement during the application of the dressing.

*Fracture of the Ankle.*—Put the patient on the table with the center post resting against the perineum. Put on a slipper of plaster of Paris, applied

in the usual way, and allow it to set (harden); apply the leather cuff, and by means of the rope and ratchet pulley, pull the bones in apposition; drop the lower end of the table top under the leg (see Figure 1) and, beginning at the top of the slipper, pad the limb and apply the upper section to just above the bend of the knee. This gives perfect reduction and permits perfect application, and one should get perfect results.



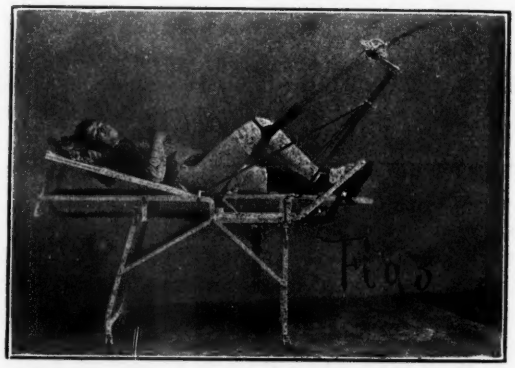

But should the fracture occur in the *middle or upper portion of the tibia and fibula,* to stop at the knee with the splint would not afford perfect immobilization. In this fracture we should go above the knee, and if the knee does not participate in the fracture, by all means put it up flexed on the thigh. This flexion serves a double purpose; first, it relaxes the muscles and places them in a normal restful position, and, second, the angle at the knee aids in fixation. Arrange the table as in Figure 2, the lower half of the table top on the injured side dropped down on the sliding bars, the foot-piece




elevated until the foot rests flat and comfortably on it, from heel to toe. Put on the plaster slipper as in fracture of the ankle, and then flex the leg on the thigh to the desired point. Pad with cotton wadding and apply a plaster cast from just below the knee to as high as may be desired. Fasten the foot by means of the leather cuff to the foot piece and so elevate the tripod over the table (Fig. 2) that traction will be in the axis of the tibia; and make your traction until the fragments are in apposition. Then pad and fill in the interspace as shown in Figure 2, making a few extra turns at the welding point above and below. Continue traction until certain of perfect reduction. The angles at the knee, heel and instep afford points of absolute fixation.

*Fracture of the Femur.* The great difficulty of proper reduction and perfect immobilization has made this fracture the cause of more suits for damage and malpractice than any other. For this reason I ask your special attention to a method of reduction and dressing which, if carefully studied and put into practice, will eliminate a large share of the difficulties usually involved.

The first step in the treatment of any fracture of the shaft of the femur is to carry a plaster cast from the base of the toes to just above the knee, with the

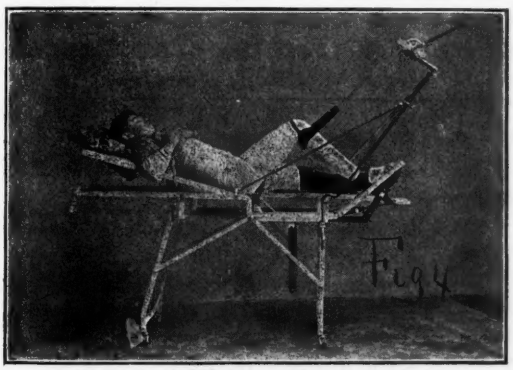



knee flexed on the thigh to a point of natural muscular relaxation, and allow the plaster to set. Arrange the table as in Figure 3 by lowering the lower half on the injured side, pulling the sliding bar out so as to form a brace to the foot-piece, and elevating the foot-piece. Place the patient on the table with the center post against the perineum, the foot resting flat and comfortably on the foot-piece and fastened by the leather cuff; elevate the tripod until the rope from the pulley is in the axis of the femur; apply the leather strap so as to grasp the condyles of the femur; hook both the ends of the little bar on the end of the rope in the holes in the leather strap and make traction until the fragments are in good position; stop now, telescope the back part up under the shoulders, pad the thigh, hip, back and around the pelvis and abdomen and begin with plaster at the upper end of the lower section and continue it in the

usual way up to a transverse nipple line (Fig. 4); reinforce at the hip and welding point above the knee by including fine copper wire between the layers of plaster. This is a dressing that will hold everything just as it has been placed; allow the patient the freedom of every movement such as getting in and out of bed, sitting up, walking with crutches, etc., and all without pain or the possibility of injury. I have used this method a number of times with perfect results, and others who have used it are very enthusiastic over the comfort to the patient, the little trouble to the physician and the final results.

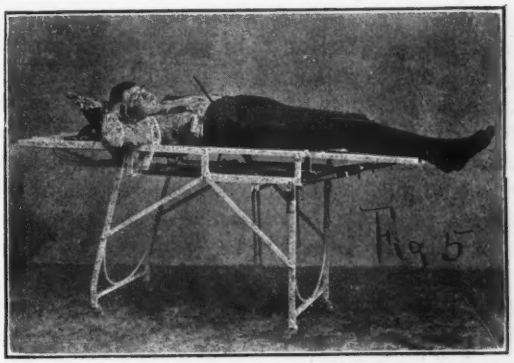
I have also had several good results in intracapsular fractures put up in the same position. For old people with this injury, the dressing is a boon, for it allows change of position, defecation and urination in natural positions, facilitating cleanliness, bathing, change of bed linen, etc.

I have given the name double angular plaster applied in sections to this method, as each of these angles serves the important point of giving absolute fixation between hip and knee. By means of the rope and pulley, reduction is perfect, and the abrupt




angles make immobilization also perfect. If the reader will study the position and dressing for a few moments he will see that it is impossible for shortening or eversion or inversion to occur, thereby insuring (with care) perfect results, with unlimited freedom and reasonable comfort.

*Fracture of the Clavicle* is also of interest because of the inability to keep the shoulders and scapula on the injured side immobilized. This is best accomplished as follows: Arrange the table as for general surgery; then telescope the dorsal part of the top to its full extent; place the spinal brace in position by hooking it in the hole from which the center post was removed. Place the patient on the table with this brace reaching to about the fifth or sixth cervical vertebra, the head resting on a pillow supported on the telescoped part, as in Figure 5. With an ordinary roller bandage tie the sound shoulder in the proper position, then bring the fractured ends of the clavicle in apposition and tie this shoulder to the side of the table. Pad the chest and apply a light plaster yoke from the nipples up, including both




shoulders in a double figure-of-eight back and front. This is a comfortable and efficient dressing, which is more than I have been able to find in any other method.

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## SYPHILIS OF THE JOINTS.

In the early stages of hereditary syphilis the gravamen of attack does not, as a rule, expend itself on the joints, but upon the shafts of the bone, and their terminal portions or epiphyses. In the growing bone the length is accomplished by true increase in size of the shaft or diaphysis into the cartilaginous layer which exists at its end between the terminal portion and the epiphysis. This part is called the diaphyso-epiphyseal junction, and it is here that in hereditary syphilis the morbid process is developed in any of the long bones. In the early days the lesion, known as osteochondritis, is the predominating morbid osseous change. As a rule there is no synchronous or complicating joint involvement, except in the parts where the epiphysis is very narrow and the synovial membrane very near or contiguous to the seat of inflammation. As a rule, therefore, we do not find articular lesions in recent hereditary syphilis. As the disease grows older we lose the early osteochondritic changes and observe features in the course of syphilitic osseous lesions which resemble those of the acquired infection. Then we encounter periostitis, osteitis, inflammatory and gummatous, with more or less typical synovitis.—R. W. TAYLOR in the *Medical Record*.

# RESULTS OF UNTREATED TUBERCULOUS COXITIS.

By Edward Le Roy Barnett, M.D.,

NEW YORK.

It seems to me there is no better way of introducing my subject than by quoting a few words from one of our well-known text-books on the subject. The author says, "The principles that should govern the treatment of a disease are best indicated, by the study of cases that have received no treatment." And so it seems to me, if we have constantly in mind, those things which are the natural results of the disease, in its different stages, we will always know just how effective or ineffective our own treatment happens to be.

In the *Medical Record* of March 2, 1878, Gibney reported on the results of eighty cases of untreated hip disease. Dividing the statistics into nine classes we shall begin with:

1. The Duration of the Disease.

In forty-one per cent. of the cases a cure was established in three years.

In thirty-five per cent. of the cases from three to six years.

In twenty per cent. from six to ten years.

The remaining four per cent. in over ten years.

2. Occurrence of Abscesses.

Sixty per cent. had abscesses in the course of the disease.

Forty per cent. were without them.

3. Degree of Flexion Deformity.

In two and one-half per cent. there was flexion and ankylosis at 90 degrees.

In nearly four per cent. there was 70 degrees of flexion.

In nearly four per cent. more there was 60 degrees.

In twenty-three per cent. there was 45 degrees.

In twenty-three per cent. there was 35 degrees.

In twenty-two and one-half per cent. there was 30 degrees.

And only thirteen per cent. had as little flexion as 10 to 20 degrees.

The other deformities were not noted.

4. Degree of Motion.

In fifteen per cent. of the cases, there was from 15 to 90 degrees.

5. Disability in Regard to Locomotion.

Seventy-six per cent. could run and walk without discomfort.

Fifteen per cent. could walk a short distance unaided, but if they tried to walk a longer distance, required a crutch or cane.

The remaining nine per cent. could not walk unaided without pain.

6. Amount of Shortening.

In two and one-half per cent. of the cases there was one-half inch of shortening.

In thirty per cent. there was one inch.

In twenty-two per cent. there was one and one-half inches.

In twenty-five per cent. there was two inches.

In nine per cent. there was three inches.

In three per cent. there was four inches.

7. Displacement of Trochanter Above Nelaton's Line.

No direct mention was made of the per cent., but a fair estimate can be made from the facts that in reported cases lasting from early childhood to adult life, with no mechanical treatment, there is seldom over one inch of real shortening. So on this basis of reckoning, all of those cases having one and one-half inches of shortening had upward displacement of the femur, that is, sixty-eight per cent.

This is further strengthened by the reports of Sasse and Bruns, who found upward displacement in sixty-six and seventy-five per cent. respectively of their cases treated by the long plaster of Paris spica. So our estimate is certainly conservative.

8. Concerning the Atrophy of the Limb, there is no information given.

But in my four personal cases of untreated hip disease

No. I has one-half inch shortening in the femur and one-quarter inch in the tibia.

No. II has one-half inch in the femur, and one-half inch in the tibia.

No. III has three-quarter of an inch in the femur, and one-half inch in the tibia.

No. IV has one-quarter inch in the femur and one-quarter inch in the tibia.

9. The mortality in 288 untreated cases, also reported by Dr. Gibney was twelve and one-half per cent.

Now let us examine more in detail each one of these classes.

In regard to the duration of the disease, I could find no statistics on treated cases; but it seems to me the forty-one per cent. which were cured under three years, would compare very favorably with the treated cases, while the percentages from three to six years and from six to ten years would be progressively less favorable, from which we would conclude that nearly one-half of our cases will get well

under any treatment in about the same length of time. The duration of the other half would be somewhat shortened by mechanical treatment. Therefore, if we wish to shorten the time of the disease, we must look to hygienic means rather than mechanical.

Another factor to support the view that the time before cure is established is not much lessened by mechanical treatment is the statistics of 636 cases in different clinics, where abscesses were noted in fifty-six per cent. of the treated cases, while only sixty per cent. were noted in the untreated ones.

The best results are shown by modern methods in the lessening of flexion deformity and the added range of motion. For ninety per cent. of the clinically treated cases have less than ten per cent. of flexion, while the range of motion is more than doubled.

Disability in regard to locomotion is very little in treated cases, while twenty-four per cent. of the natural cures are practically unable to walk without support.

Out of over 100 treated cases in the Ruptured and Crippled Hospital, sixty-five per cent. had only one inch or less of shortening, while only thirty-two per cent. of the untreated cases had so small an amount, showing the practical results of stilting, for none of the sixty-five per cent. could have had any appreciable upward displacement of the trochanter.

The mortality, we can safely say, has been lessened but little by mechanical treatment in the hospital where the hygienic conditions have remained the same.

Thus in a brief résumé we see that our modern methods of treatment have prevented flexion deformity almost entirely. Upward displacement of the trochanter where stilting has been employed has been prevented in more than double the cases, while in the cases where the ordinary long spica was used there has been little difference.

It has more than doubled the average range of motion. The amount of practical shortening is 100 per cent. less. The disability, which is by the way the true test, is greatly lessened. While on the other hand, the duration of the disease and the occurrence of abscesses have been favorably modified but slightly. And the actual shortening of the limb has no doubt been made greater by mechanical treatment. The atrophy of disuse far overbalances whatever is gained by the shorter time of the disease.

Thus, if in the light of untreated cases of tuberculous coxitis, we study any new method of mechanical treatment, the test of effectiveness should be:

*First.* That we should prevent upward displacement of the trochanter as it militates more than anything else against good functional results.

*Second.* That we must prevent other deformities with the proviso that, if we can gain in stability of the joint by placing the hip in some abnormal position during treatment, it should be allowed.

*Third.* Motion and the absence of shortening should always be sought but not if it interferes in any way with functional results.

159 LEXINGTON AVENUE.

## SURGICAL POSTURES.

BY MARTIN W. WARE, M.D.,

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NEW YORK.

*(Continued from the August number.)*

### POSITIONS FOR ESTIMATING THE PRESENCE OF HIP JOINT DISEASE.

The success or failure to establish the diagnosis of hip joint disease will depend upon the exactness and gentleness with which the various excursions of the range of motion are executed (passively) by the surgeon. To this end the patient must always be stripped of all clothing, placed on his back, and thorough relaxation and parallelism of the limbs, if possible, obtained, in order to ascertain the limitations of motion.

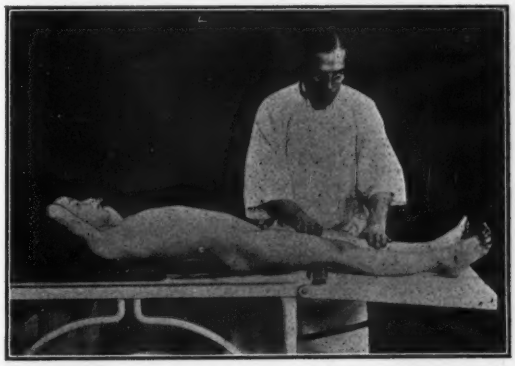

Fig. 51. Position for Estimating the Limitations of Rotation in Hip Joint Disease.

First in order to be tested are the limits of *internal and external rotation.* This should not be done by grasping the leg or thigh and rotating it quickly, but with the entire lower limb extended, one hand is placed on the thigh, the other on the leg (Fig. 51), and the limb as a whole is made to roll gently in or out. By watching the excursion made by the foot and, if necessary, by contrasting this motion simultaneously executed on the opposite thigh, if sound, the limitation of motion can be ascertained.

*Limitation of Adductors.*—To ascertain the extent of abduction it is necessary to guard against false impressions due to the tilting of the pelvis. Before executing any motion, the pelvis should therefore be steadied by the hand. (Fig. 52.) The

Fig. 52. Position for Estimating the Limitations of Abduction.

leg being extended on the thigh, the whole member is gradually abducted from the middle line until the resistance offered by the adductors becomes active and furthermore can be appreciated by palpation. This motion, also, is to be compared with that executed on the opposite side. In similar manner we proceed to ascertain the limit of adduction.

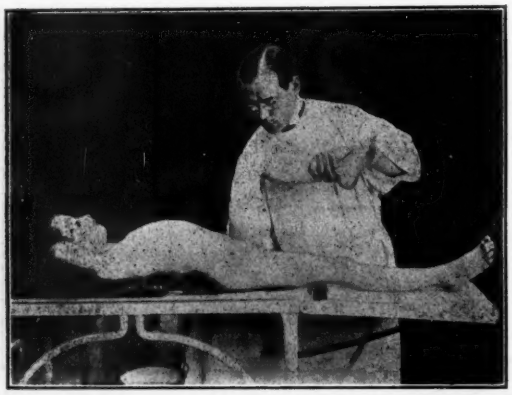

Fig. 53. Position for Estimating the Limits of Flexion in Hip Joint Disease.

*Degree of Flexion:* To learn to what extent the thigh can be flexed, the leg should be flexed at right angles to the thigh (Fig. 53), and the thigh in turn made to assume the vertical position and, if possible, eventually be carried on to the abdomen, until resistance is encountered.

In straightening the limb the *limitation of extension* can be ascertained.

*Limitation of Hyperextension.*—To determine this restriction the patient lies upon his abdomen (Fig. 54). One hand is placed upon the small of the back and the other hand grasps the leg flexed upon the thigh in an attempt to lift it from the table. In the presence of hip joint disease a spasm of the erector muscles of the trunk and of the psoas results.

TESTING THE MOBILITY OF THE SPINE.

Dorsal flexion, lateral flexion and rotation of the spine are greatest in the cervical and in the lumbar

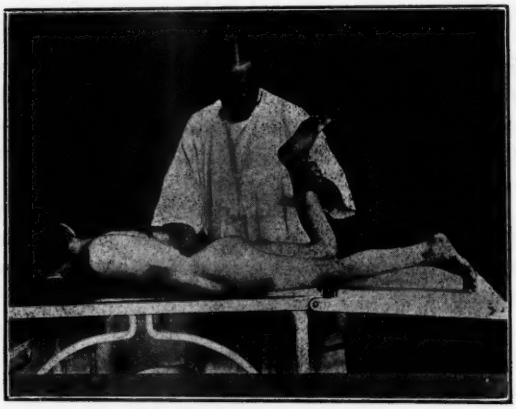

Fig. 54. Position for Estimating the Degree of Hyperextension of the Thigh in Hip Joint Disease.

regions. In the latter region the limitations can be readily demonstrated by placing the patient upon his abdomen. One hand is applied to the lumbar spine (Fig. 55). Now both thighs are allowed to rest upon the forearm, and an attempt is made to raise the pelvis and thighs as a whole. In so doing

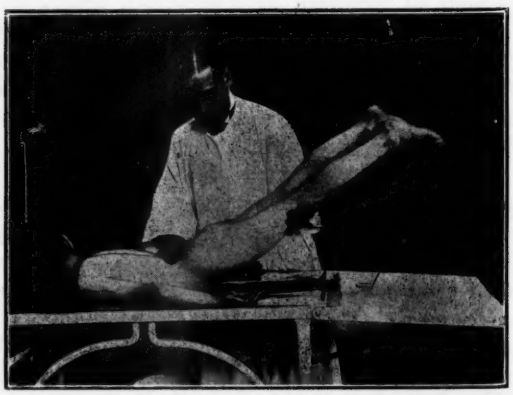

Fig. 55. Position for Estimating Mobility of the Spine in Spinal Disease.

the lumbar spine will be felt to bend and in the event of disease no concavity will result; the spine will remain rigid and on a line with the pelvis. By

swaying the thighs and pelvis to the right and left the restrictions of lateral flexion can be made out.

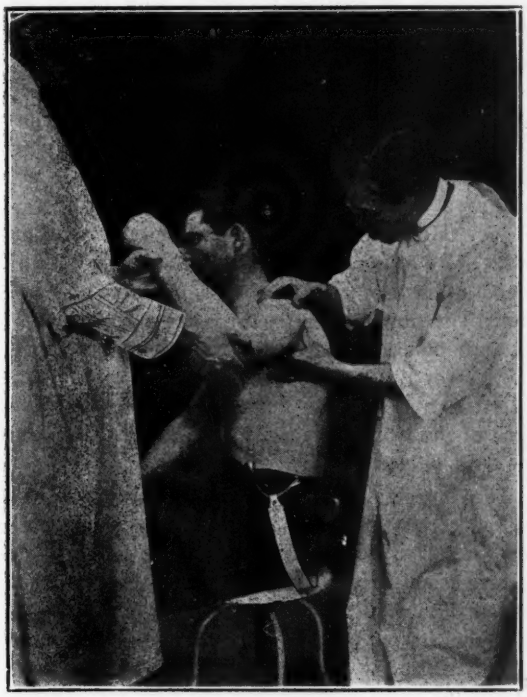

Fig. 56. Position of Assistant and Surgeon in Palpation of the Upper End of the Humerus in Shoulder Joint Injuries.

PALPATION OF THE SHOULDER JOINT.

It is possible to appreciate the position of the head of the humerus and its mobility or immobility with reference to the shaft, by grasping the lower end of the humerus (elbow), the forearm being flexed, and placing the other hand upon the shoulder. The hand at the elbow executes the various movements and the other hand is used for palpation. Greater exactness will follow if the execution of the movements of the shaft of the humerus be entrusted to an assistant (Fig. 56), which allows the surgeon to utilize both hands to thoroughly grasp the head of the bone.

POSTURES FOR REDUCTION OF SHOULDER DISLOCATIONS (KOCHER'S MANIPULATION.)

In the reduction of the displaced shoulder, the head of the humerus occupying the most common site of displacement just beneath the corocoid process, its return to the normal position (glenoid fossa) is usually readily effected by resorting to Kocher's manipulations. The arm is seized at the elbow, adducted, and rotated outwards so that the flexor surface of the forearm is directed forwards (Fig. 57). The arm still in adduction, the elbow is elevated, until it is almost on a level with the shoulder (Fig. 58). From this moment on the inward rotation of the arm is begun by carrying the forearm and hand over the chest until the hand is capable of resting on the sound shoulder.

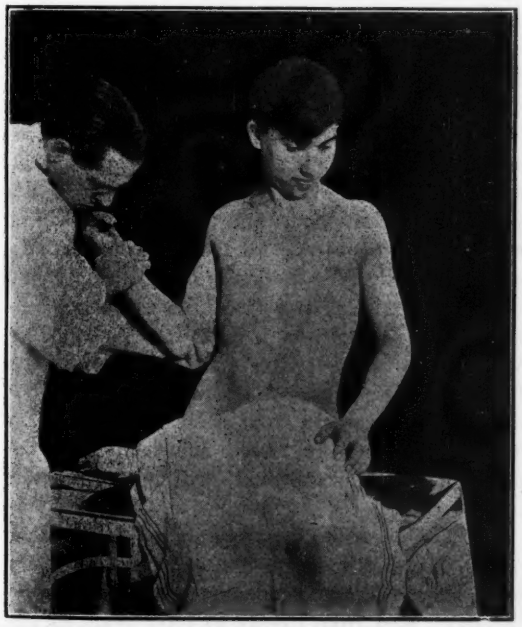

Fig. 57. First Position in Reduction of Shoulder Joint Dislocation (Kocher).

Fig. 58. Second Position in Reduction of Shoulder Joint Dislocation.

*(To be continued.)*

# BLOOD EXAMINATION IN SURGICAL DIAGNOSIS. A PRACTICAL STUDY OF ITS SCOPE AND TECHNIC.

By IRA S. WILE, M.D.,
NEW YORK CITY.

*(Continued from the August number.)*

EXAMINATIONS BEFORE OPERATIONS.

Surgical hematology requires an identity of technic. All the blood examinations in any single case, no matter how frequently they may be required, should be made by the same observer. As far as is possible the hematologist should be in a position to fully appreciate the clinical progress of the case, in order that his interpretations may be most reliable and trustworthy. Examinations should be concluded as quickly as possible after securing the specimens. A few hours' delay may so invalidate the interpretation of the blood findings as to give the surgeon little light on the later condition of the patient. Blood examinations should be interpreted with reference to the clinical history of the patient at the time at which the blood was secured for examination. The interpretation should not be based upon the other clinical findings at the time the hematological report is delivered to the surgeon. The exact time at which blood specimens are secured should always be noted. The more frequent the examinations, the more valuable they become for surgical diagnosis.

Many drugs that may have been used before a patient comes under a surgeon's observation, cause a leucocytosis. Potassium iodid, quinin, salicylic acid, and the salicylates, antipyrin, protonuclein, digitalis, morphin, all cause a leucocytosis. Brisk catharsis, as used for example in preparing a patient for operation, produces a polycythemia as well as a leucocytosis. Saline intravenous or subcutaneous injection likewise induces a rise in the number of leucocytes. In order to have a trustworthy blood examination with which to compare blood reports post-operation, it is imperative to know the state of the blood just previous to the administration of an anesthetic or before any actual surgical intervention occurs.

BLOOD CONDITION AFTER HEMORRHAGE.

Whether hemorrhage be the result of accident, pathological processes, or surgical manipulations, the blood alterations are profound. The evidence of hemorrhage, due to traumation, is noted by blood examinations much more promptly than the loss of blood arising from pathological conditions, as tuberculosis, carcinoma or ulcer of the stomach. If hemorrhage is continued over a long period of time or is exceedingly profuse, a profound anemia may occur and the regeneration of the blood may be rendered impossible. By prompt ligature or torsion or crushing of bleeding points, by reducing oozing to the minimum, the surgeon is conserving the vitality of the patient, ensuring a more rapid healing of wounds, and reducing the danger of secondary infection. In general, the degree of anemia induced by hemorrhage, varies with the rapidity of blood loss more than with the total volume of blood lost. The slow oozing from a wound or flap has a less pronounced effect on the circulating blood than the loss of the same quantity of blood at a single spurt from an artery. Fortunately the coagulation time of the blood increases in rapidity as the blood mass is reduced by hemorrhage.

The immediate result of hemorrhage is a loss of red corpuscles. The loss of hemoglobin parallels the fall of red corpuscles while the hemorrhage is active and before regeneration of the blood has begun. As soon as the regenerative processes begin, the red corpuscles increase in number more quickly than the percentage of hemoglobin rises. Owing to hasty regeneration the first red corpuscles are deficient in hemoglobin. The blood index is at first about 1. but gradually becomes lower and the anemia assumes the chlorotic type. The blood index may drop as low as 0.5 after severe hemorrhages due to trauma. The red corpuscles exhibit various alterations, depending upon the duration and extent of the hemorrhage. There may be merely variations in size (anisocytosis) and shape (poikilocytosis) or marked degeneration, particularly polychromatophilia. All degrees of anemia may be produced even to the pernicious anemia type. Normoblasts and, rarely, microblasts may be present. The appearance of the nucleated red corpuscle is usually very sudden in large numbers, and for a comparatively short time. Such a sudden outpouring of normoblasts is termed a blood crisis. After the normoblasts have made their appearance, the regenerative processes are well advanced. The normoblasts disappear from circulation as soon as regeneration has progressed sufficiently for the hematopoietic tissues to send forth mature red corpuscles.

The time necessary for regeneration of the blood varies, according to the extent and duration of the hemorrhage and the recuperative power of the individual. Men from twenty to forty years of age possess the most active power of regeneration. Wo-

men are slower, and children are slowest in blood regeneration. According to Grawitz, the average time for regeneration of blood after a hemorrhage of less than 1% of the blood volume is two to five days. Blood loss of 1% to 3% requires five to fourteen days for regeneration. Blood loss of from 3% to 4% requires fourteen to thirty days for regeneration. In surgical conditions it is very seldom that more than 3% of the blood volume is lost. Therefore, after surgical procedures, the blood should reach its normal within two or three weeks, as far as the regeneration required by hemorrhage is concerned. If the normal is not reached after a traumatic hemorrhage within three weeks, some pathological condition, possibly latent, as cancer or tuberculosis, is interfering with complete regeneration. In carcinoma, the hemoglobin rarely reaches its pre-operative height, even after a successful operation. It is quite noteworthy that in the regular process of regeneration, the hemoglobin does not reach the normal as quickly as does the number of red corpuscles.

Post-hemorrhagic leucocytosis is of diagnostic value. The leucocytosis may begin within a few minutes after a sudden, severe hemorrhage, or may not be discoverable for several (five to ten) hours. The leucocytosis may be as high as 35,000. The more common maximum is two or three times the number normal to the individual. The leucocytosis is generally transitory and persists only until regeneration is actively begun. The height to which the post-hemorrhagic leucocytosis rises is regarded by many observers as corresponding with the power of the individual to regenerate the blood lost. The greater the hemorrhage, therefore, the higher the leucocyte count in a patient with strong regenerative power. A large hemorrhage with a low leucocytosis attendant thereupon bespeaks weakness in the power to renew the blood to its normal condition.

The rise in the number of the leucocytes is principally due to an increase of the polynuclear neutrophiles, though all the types of leucocytes are increased. Rarely a lymphocytosis may occur. The eosinophiles usually disappear. The basophiles may be greatly increased. I have observed as high as 4% in a leucocytosis of 26,000 following a copious hemorrhage. Myelocytes are occasionally present, especially in children.

A large internal hemorrhage, as from a ruptured extrauterine gestation sac, or ruptured spleen or kidney or ulcer of the stomach or duodenum, causes a loss of red corpuscles and induces a leucocytosis. When such blood changes are noted they are valuable in differentiating the conditions attended by hemorrhage from intestinal obstruction or peritonitis. Cerebral hemorrhage can be differentiated from concussion of the brain by the concomitant leucocytosis. The leucocytes may rise as high in number as 20,000.

Chronic conditions, attended with slow but rather constant loss of blood, may not leave a pronounced effect upon the blood for a long time. If the hemorrhages become numerous and rather profuse, anemia of variable grade will be induced. Hemorrhoids, metrorrhagia, epistaxis, tuberculosis, carcinoma, may cause a continuous drain on the hematopoietic tissues rendering regeneration very slow. Blood regeneration is more rapid after a single profuse hemorrhage than after a long continued chronic loss of blood.

SHOCK. Little attention has been given to the study of blood alterations due to shock. A mild degree of shock calls forth a slight rise in the number of leucocytes. Severe shock paralyzes the leucoblastic tissues temporarily, as a result of which a transient leucoepnia ensues.

PREPARATION OF THE PATIENT. Concerning the influence of drugs in causing leucocytosis, mention has already been made. The preparation of a surgical patient involving copious purgation, causes inspissation of the blood and a consequent polycythemia. This must be borne in mind because ether also causes polycythemia.

ANESTHETICS. Although there is no question as to the marked effects of anesthetics on the blood, complete harmony of opinion as to the causes thereof does not exist. Differences in clinical results are not very great, and can be readily explained by variations in the technic of narcosis, differences in methods of administration, in the volume of anesthetic used and in the duration of anesthesia.

In primary ether anesthesia the hemoglobin gradually falls. More than one-half of the total reduction occurs during the first hour after anesthesia. The lowest percentage of hemoglobin is reached within twenty-four hours. The regeneration of the hemoglobin is less rapid than the restoration of the red corpuscles to the pre-anesthesia volume. Ether has a vigorous hemolytic action, as a result of which destruction of red corpuscles takes place quickly during etherization. In the effort to make up for the destruction of the red corpuscles the hemotopoietic tissues become overactive and a polycythemia results. This polycythemia is not dependent upon the cyanosis occurring during anes-

thesia or resulting from the struggles of the patient or from nausea and vomiting. Because of the hemolytic action of ether, Da Costa advises that serious and complex operations involving prolonged anesthesia be not attempted when the hemoglobin is below 50%. Local anesthesia is preferable under such circumstances, when possible. Mikulicz was opposed to operation when the hemoglobin was below 30%. On the other hand, successful operations have taken place when the hemoglobin has been reduced to 15%. It is inadvisable to use ether when the hemoglobin percentage is low. Ether induces a comparatively high leucocytosis. The increase in leucocytes varies from 6% to 73% (average 37%) more than were present previous to etherization. The rise occurs during etherization. The more intense the leucocytosis before anesthesia, the greater will be the increase in the leucocytes as a result of etherization. The induced leucocytosis is transient and rarely persists longer than twenty-four hours. It is important to bear in mind this post-anesthesia leucocytosis when deciding whether a post-operative rise in leucocytes is due to poor drainage, an unopened pus pocket or secondary infection. As a point of differentiation, it is noteworthy that the leucocyte increase is due to an increase in the number of all types of leucocytes. There is a proportionate increase of all the types.

Chloroform also causes an absolute leucocytosis which usually persists slightly longer than that due to etherization. Occasionally the leucocytosis may persist several days. The duration of the chloroform leucocytosis appears to bear some relation to the amount of chloroform used and the rate of elimination from the system. There is one dangerous effect of chloroform anesthesia. The prolonged and free use of chloroform reduces the coagulability of the blood and thus exposes the patient to greater danger from oozing or secondary hemorrhage.

POST-OPERATIVE LEUCOCYTOSIS.

Post-operative leucocytosis is not due to anesthesia inasmuch as it occurs in cases where no general anesthetic has been used. The leucocytosis consists of an increase of the white corpuscles by 5,000 to 10,000. This rise and the subsequent fall to the pre-operative leucocyte count take place within thirty-six hours after operation. If the post-operative leucocytosis is more than 10,000 or 8,000 and persists over eight hours there is abundant reason to search for a further cause, as secondary infection, neglected pus foci, etc. There is absolutely no relation between the post-operative leucocytosis and the pulse or temperature or pain or shock. The extent of the operation has an effect on the leucoblastic tissues. The more severe, prolonged, and serious the operation, the higher is the post-operative leucocytosis likely to be. In distinction from the post-anesthetic leucocytosis, the polynuclear neutrophiles appear to increase disproportionately to the other types of white corpuscles. The post-operative leucocytosis affords another reason for a blood examination, particularly a leucocyte and differential count, previous to anesthesia or operation, however slight. Such a simple surgical procedure as changing the packing of a wound may cause a temporary increase of the leucocytes.

*(To be continued.)*

## ECTOPIC PREGNANCY.*

By E. C. TAYLOR, M.D.,

JACKSON, MICH.

I desire it to be understood in the beginning that I have no intention of presenting a long-winded textbook essay on extrauterine pregnancy, but to very briefly bring out some practical points on a condition with which I have been brought in close contact several times recently, and from which I believe I have gleaned some practical ideas.

There are some conditions incident to the details of the operation for extrauterine pregnancy, which necessarily differs in technic from all other pelvic operations, and such differences as I may point out will be my excuse for this paper.

By ectopic pregnancy I mean of course all gestations taking place outside the uterine cavity. Actually, that does not leave a very large field in which such gestations do really occur, for the old idea that gestation ever does or ever did take place upon the peritoneum has passed into a state of innocuous desuetude. Rather authentic cases of gestation originating in the ovary have been presented, but personally I must be "shown" before I will believe it. Such being the case, it leaves only the tube in which such gestation can and does occur. So all extrauterine pregnancies may as well be called tubal pregnancies, for that is what it really amounts to, even though there be a rudimentary horn in a bicornate uterus and pregnancy occurs therein.

Tubal pregnancy was formerly regarded as of very rare occurrence. Now, we are frequently coming in contact with these cases. The question naturally arises, "Are they becoming more frequent, or are we becoming wiser and better able to prop-

* Read before the Eleventh Councilor District Medical Society of Michigan.

erly diagnose them?" In this connection I want to repeat a statement made by me at the last meeting of the State Society. It is my opinion that practically all of the so-called pelvic hematoceles of which we formerly heard so much were due to rupture of the gestation sac of tubal pregnancy. Personally, I take very little stock in the theory of pelvic hematoceles from other causes. When I expressed myself in a similar vein at the Petoskey meeting, some medical friends disagreed with me. But, on reviewing the literature, I find many of the best men in this country take the same position. It is mighty important to recognize such cases, for I have known two or three of these cases to be diagnosed as hematoceles and operations delayed (on the supposition that the clot would be absorbed), until a septic condition had developed. The first case I ever had resulted in death when life could easily have been saved, but for the persistency of a consultant in fighting off an operation.

It is very generally conceded that in a large proportion of cases normal fertilization takes place in the Fallopian tube; this being the case, the only wonder is that in more cases the impregnated ovum does not become lodged in the tube from delay in passing into the uterus. It is a fact that tubal pregnancy is most common after long periods of sterility, and if such sterility was due to chronic salpingitis which produced thickening of the tube and promoted or delayed the discharge of the ovum, either pregnated or unimpregnated, it would probably explain the fact that tubal pregnancy occurs oftener from causes producing sterility than from sterility itself.

The theoretical predisposing causes of ectopic pregnancy, as given by many writers, are briefly:

1. Inflammations of the Fallopian tube which cause:

(a) Denuded patches and desquamation of epithelium.

(b) Loss of peristaltic action of the tube.

(c) Cicatricial contraction of the tube.

2. An abnormal tube.

(a) Long.

(b) Tortuous.

(c) Small lumen.

3. New formations in and around the tube.

4. Torsion of the tube.

5. All conditions giving rise to sterility of long standing.

The above are the main predisposing causes, but I believe there are other coöperating causes.

Briefly simplifying the development and course of tubal gestation, as the fetus enlarges the course of gestation will be modified in one of the following ways:

1. The fetus, if near the abdominal opening of the tube and expulsion occurs before the eighth week, may be thrown out through that opening into the abdominal cavity without rupture of the tube (tubal abortion). These are the cases that are most likely to be diagnosed as pelvic hematoceles.

2. The tube may rupture and partly or wholly discharge the fetus into the abdominal cavity or into the space between the folds of the broad ligament, or if the ovum is lodged close down to the uterus, the sac might rupture in such a manner as to be discharged therein. I suppose it is possible for the fetus, if low down in the tube, to go on to term. As I have before said, tubal abortion must occur before the eighth week, as the abdominal opening closes after that period. But tubal rupture may occur at any time, most likely during the second month, less frequently thereafter. The feature of this condition, however, which interests us most is the diagnosis, if possible, before rupture has occurred, and if not then, as soon as possible thereafter.

I have found by experience in these cases that no set of symptoms is reliable; each case presents something new to befog the diagnosis, and an early diagnosis often depends largely upon one's former knowledge of the patient's history, as to the presence or absence of any chronic pelvic disease, as to the regularity of her menstrual periods, etc. With the assistance of that knowledge a diagnosis is often very easy and sometimes positive, but, as a rule, an absolute diagnosis cannot be made. We have operated fourteen of these cases in Jackson in the past eighteen months, nearly all drawn from our own city and county, and these have all occurred in the private and consultation work of four men, viz.: Dr. D. E. Robinson, myself, Dr. J. C. Kugler, and Dr. Roy Chivers, numerically in the order given. I am more or less familiar with a majority of these cases, and I can safely say that in not one of them was a positive diagnosis made prior to the making of an exploratory incision, and in one case at least not a supposition of the true condition existed. In one case a diagnosis of appendicitis was made and an appendicectomy begun. When the abdomen was opened the operator was confronted with a cavity full of blood, so that it was impossible to get one's bearings. So far as my knowledge goes, no writer has given so full and complete a differential diagnosis table as has Dudley in the last edition of his admirable work, and with slight

changes I herewith present it, as it covers the ground of diagnosis in the briefest possible manner.

| RUPTURED TUBAL PREGNANCY. | RUPTURED PYOSALPINX. |
|---|---|
| 1. No initial history of infection. | 1. Initial history of infection. |
| 2. Great rapidity of pulse. | 2. Pulse not so rapid. |
| 3. Temperature at first subnormal, later may be elevated. | 3. Rise of temperature, marked from onset. |
| 4. Pain excruciating, but subsides after a few hours. | 4. Pain less intense, but continuous. |
| 5. Symptoms of hemorrhage: a. Sudden, acute anemia. b. Weak, rapid heart. c. Dyspnea. d. Sighing respiration. e. May be syncope. | 5. Usually absent. |

| RUPTURED TUBAL PREGNANCY. HEMATOCELE. | PELVIC PERITONITIS AND CELLULITIS. |
|---|---|
| 1. History of pregnancy. | 1. History of infection. |
| 2. Sudden onset. | 2. Onset less sudden. |
| 3. Hemorrhage may cause collapse. | 3. No hemorrhage. |
| 4. Temperature normal or subnormal at first. | 4. Temperature elevated. |
| 5. Usually mass soft; later hard. | 5. Usually mass hard; later may soften. |
| 6. Fever may finally follow appearance of hematocele. | 6. Precedes. |
| 7. Uterine decidua. | 7. Absent. |
| 8. No leucocytosis at time of rupture. | 8. Always leucocytosis in early stages. |

| RUPTURED TUBAL PREGNANCY. HEMATOCELE. | UTERINE AND OVARIAN TUMORS. |
|---|---|
| 1. Urgent symptoms at onset. | 1. Absent. |
| 2. Development rapid. | 2. Slow. |
| 3. Not very sharply circumscribed. | 3. Mass sharply circumscribed. |
| 4. Immobility of mass. | 4. Mobility usual. |
| 5. Signs of pregnancy precede formation of mass. | 5. Absent unless complicated by pregnancy. |
| 6. Uterine decidua. | 6. Absent. |

| RUPTURED TUBAL PREGNANCY. HEMATOCELE. | HEMORRHAGE INTO OVARIAN CYST. |
|---|---|
| 1. No preëxisting tumor. | 1. Preëxisting tumor. |
| 2. History of pregnancy. | 2. Absent. |
| 3. Tumor not soft and tense. | 3. Tumor smooth and tense. |
| 4. Uterus somewhat enlarged. | 4. Not so much enlarged. |
| 5. Uterine decidua. | 5. Absent. |

| TUBAL PREGNANCY. | NORMAL PREGNANCY. |
|---|---|
| 1. Before rupture, gestation sac harder. | 1. Uterus softer. |
| 2. Fluctuation and ballottement absent. | 2. Fluctuation and ballottement later. |
| 3. Uterus slightly enlarged. Tumor separate from uterus and crowds it to opposite side of pelvis. | 3. Tumor is enlarged. |
| 4. Unusual history. | 4. Nothing unusual in history. |
| 5. Tubal abortion, or rupture between fourth and ninth week usual. | 5. Does not occur. |
| 6. Discharge of uterine decidua with false labor pains occurring usually at time of tubal abortion. | 6. Does not occur. |

Two of the three cases I have recently operated upon are so typical of their class that I will give a brief history.

CASE I.—Mrs. P., aged 32, a strong, healthy young woman, a resident of a neighboring town, had consulted me about nine weeks before for sterility, giving the following history: Had been married twelve years; four months after marriage became pregnant and aborted at five months, without any known cause. Ten months later became pregnant again and, acting under the advice of her father, who was a physician, every possible precaution was taken to prevent a second miscarriage, but at six months she again aborted, since which time she had not become pregnant, but was very anxious to bear children. She assured me that her menstruation had been unusually regular, but scanty, thick and very dark in color, free from pain at all times, with no loss of sexual powers. Upon a most thorough and careful examination I failed to find anything abnormal with the pelvic organs. There being some stenosis of the cervix, I dilated gently a couple of times, and, her menstrual period being at hand, prescribed permanganate of potash pills, gr. 1, three times daily, to be taken for thirty days, with absolute freedom from sexual indulgence, until after her next menstruation.

These instructions were religiously carried out. I was informed that the next menstruation, following the month's administration of permanganate had been much more copious, and I was greatly surprised to receive a letter about five weeks later to the effect that she had passed her menstrual date without menstruating, and her fondest dreams were apparently to be at last realized.

About ten days later I was called to see her with her family physician, who informed me that about a week previous she had gone out of town to spend Sunday, and upon arising from bed on Monday morning, she had been taken with a sharp pain in the left iliac region and almost immediately began to menstruate scantily. The pain continued, but with less severity, all the morning, during which time she had taken the train and gone home. Upon her arrival he had been called, and without attempting a specific diagnosis administered morphin and left the house, but was, within an hour, again called hastily because of the return of the pains. He arrived just in time to hear a terrific scream of agony on the part of the patient, followed by collapse and syncope. She became blanched, cold and pulseless, the heart beats were scarcely discernible for over an hour, and only by the most heroic efforts was she prevented from dying from shock. A few hours

later he discovered a semisolid mass in the left lower abdomen. He, together with other local physicians, made a diagnosis of "pelvic hematocele," which possessed the merit of being safe, but after waiting ten days for its absorption, and finding the mass growing more solid all the time and the patient with an afternoon temperature, they decided to have a consultation. I was almost positive of my diagnosis in this case, and upon operating the next day it was clearly confirmed. A large, single, semiorganized clot was found, together with many small ones and a slight hemorrhage still going on from the abdominal extremity of the tube. An enormous amount of blood had been lost, the abdominal cavity being nearly full.

This was a case of tubal abortion with only slight laceration of the tube, and although this is the type that we are told causes less shock and hemorrhage than any other, both were greater in this case than any other I ever saw.

CASE II.—Mrs. B., aged 28; strong, vigorous and healthy young woman; mother of two children, girl aged five, boy aged three; consulted me for irregular, sluggish and scanty menstruation. Pelvic organs in fair condition, except slight laceration of cervix and perineum which I advised repairing. Here again I prescribed permanganate of potash pills, gr. 1, three times daily for a month, with the result of a much improved menstruation both in quantity, and in regularity. The next menstruation was scanty again, as was also the one following. This latter did not cease entirely, and a good deal of pain was complained of in the left ovarian region, although the patient was well enough to visit me in the Western part of the State for ten days of this time. A physician was called in, who made a diagnosis of a probable salpingitis. She returned home, and I was called at once, as the trip to Jackson had apparently aggravated the trouble. I found the abdomen greatly distended from peritonitis, which was quite general, the greatest tenderness being in left lower abdomen. There was a slightly bloody uterine discharge, but too much tenderness to permit anything like a thorough examination. I was called again in the night, because of a fainting spell which frightened the family greatly. I learned that previous to this the patient had arisen from the bed hastily because of a severe paroxysm of pain in the iliac region, and, sitting on a chair, collapsed. I found such evidences of hemorrhage and pronounced shock that my suspicion was aroused.

I had her taken to the Jackson City Hospital the next morning, and the following day taken to the operating room, where a thorough examination was made by Dr. D. E. Robinson and myself. We both became reasonably certain of an ectopic pregnancy, and upon making an exploratory incision, I found just what I expected—an abdomen full of blood, much of it in small clots; and upon carefully removing the larger ones I found lying upon the bowels a perfect two and a half months' fetus, with a miniature cord still attached. On getting down to the tube, I found it enormously distended, as large as the powder horns of our grandfathers, with a ragged rent in the middle into which I could put my whole hand. This woman, like the previous case, went on to speedy recovery, and left the hospital in eleven days, practically well, and has been in perfect health since.

There are one or two points to which I want to call attention. One should not be fooled in a diagnosis by the absence of the usual symptoms of pregnancy, for often they are absent, no matter to what period these cases go before rupture occurs. In case 2, the woman became pregnant immediately following the month's administration of permanganate; she went on and menstruated twice after that, and not one symptom of pregnancy was present at any time. Another point is what, if any, effect did the permangate have in bringing about these tubal gestations?

I wish to say a word about the technic of the operation. One is confronted by conditions in these cases not found in any other abdominal operations. In the first place, no matter how large a clot is found, there are hundreds of smaller ones varying in size from a chestnut to a pin head, over and under the bowels and tangled up in the omentum, the minute ones becoming quickly organized. They cannot be wiped off with gauze sponges, neither can one ferret out the small unorganized clots hidden away in the convolutions of the bowels, and I believe the only safe way, before closing the abdomen, is to get as many of these out as possible, notwithstanding the position of some of our best men that the abdomen should never be washed out at the time of an operation. I always wash out the abdomen in these cases with a hot saline solution time after time until no more clots can be found, and someone must show me a better way before I discontinue the practice.

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## RECURRING APPENDICITIS.

Recurring appendicitis is to be treated the same as an acute new case; it is not to be recommended to base much hope in the fact that a certain wall has formed through the preceding attacks that will ward off a diffuse peritonitis—JULIUS BRUESS in the *Milwaukee Medical Journal.*

**American Journal of Surgery**

PUBLISHED BY THE

**SURGERY PUBLISHING CO.**

J. MacDONALD, Jr., M.D., President and Treasurer

**92 William Street, N. Y., U. S. A.**

to whom all communications intended for the Editor, original articles, books for review, exchanges, business letters and subscriptions should be addressed.

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WALTER M. BRICKNER, M.D., Editor

NEW YORK, SEPTEMBER, 1907.

## PREOPERATIVE AND POSTOPERATIVE TREATMENT.

In these halcyon days of surgery, the medical student and even the more or less competent "internist" is apt to think of the cure of the patient from the standpoint of the operation itself, forgetting, not absolutely, it is to be hoped, that the preoperative preparation and the postoperative care of the patient is as of much importance as a thorough eradication of the disease.

The question of care of the patient before and after the operation, will depend upon the individual prejudices and training of the surgeon. No one will question that patients have managed to get well under the most disadvantageous conditions. Many a patient who is acutely ill is put upon the operating table without the least preparation while others who have unfortunately had the time, have been purged until their bowels have been placed in such a state of unrest that it is small wonder that they complain that the weakness attendant upon these strenuous efforts has made them feel so much worse, that at times they fear to go under the knife.

The habit of too forcibly preparing a patient for operation is just as bad as not preparing the patient enough. Many times Nature will eliminate the contents of the bowel much better than the nurse. The advice to nurses to give the patient enemata "until the fluid returns clear" is fallacious. It not only tires out the nurse but, after eight or nine enemata, the patient wearies too. Patients will often go to the operating room, stand a two hour anesthesia and remain in bed three days without a rise of temperature, with the intestines containing a small amount of fecal matter and be none the worse off.

But the baneful effects of too thorough catharsis and the giving of too many enemata, are seen more plainly in the discomfort of the patient after operation, especially in the abdominal distension that results, which, as a rule, calls for more emptying of the bowels. One does not doubt for a moment that putrifying contents in the intestine will result in distension. But these putrefactive products can easily come away with one enema. On the other hand, the too thorough removal of fetid products results in an overactive peristalsis and where before there was feces, gas fills up the empty space. This is seen especially in cases where a prolonged ether anesthesia has had to be administered. The question then resolves itself into whether or not it is better to run the risk of leaving a small amount of fecal matter in the intestines which Nature can very well take care of. If the element of common sense enters into consideration at all, one must decide in favor of the less radical measure.

The use of morphin before, during or after operation is another mooted question. The man that runs away from this hypnotic does as much harm to his patient as the man who prescribes it as a routine measure. The setting up of a morphin habit from one dose is possible but not probable. It is well to quote here the words of Dr. John Gibbon (*Annals of Surgery*, August, 1907): "There was a time not long since when it was the rule of most surgeons to withhold pain-relieving drugs, such as morphia, after abdominal operations. To give a hypodermatic of morphia in these cases was thought to be a great mistake, but now we have learned that when properly employed in the postoperative treatment it is a great boon both to the patient and to the surgeon. All the bad effects formerly attributed to this drug, such as the pruduction of flatus, bad effect on the kidneys, etc., we now seem to have forgotten, or at least we have learned that it was our own faulty technic which produced much of the trouble attributed to the morphia."

Dr. Gibbon administers a small dose of morphin before the patient has recovered consciousness, and he has never observed a single bad effect. "The result is that the patient passes from the sleep of the anesthetic to the morphia sleep, gets comfortably

over the distressing hours after operation, those first few when ether is being eliminated by the lungs in large quantities and nausea and vomiting are common, and *never knows that morphia has been given.* It is better not to let the patient know the comfort of morphia. It is largely for this reason that the drug is given before the close of the operation."

The advice of Dr. Gibbon is excellent and the method he describes is employed in many of the large hospitals throughout the country. It is seldom if ever that one can attribute the bad after-effects of an operation to the use of a judicious dose of morphin and it is ludicrous to suppose that a morphin habit is formed from this single dose any more than that such a habit should be formed after a single injection of sterile water.

Within recent years the preoperative administration of hypnotics has come much into vogue and various combinations have been tried until there is great danger of placing too much reliance on this form of analgesia to counteract postoperative discomfort. Still, the use of an hypnotic, like trional, twelve hours before an operation, followed by a small dose of morphin just before the patient goes under the anesthetic secures greater quiet and therefore he requires much less anesthetic—all of which is of great importance to the patient when he reacts. The combined results of experienced surgeons who have employed various preoperative measures, who have administered various anesthetics, with or without hypnotics, before or during the operation would be of great value, provided the opinions were founded on facts and not on prejudices. The large hospitals of the country should report on such matters in the same way that they report on the number of operations, the various diseases and the number of deaths. It is of as much value to the future patient to have it known what will add to his comfort before operation and what will make his postoperative condition easier as it is to have presented for his benefit (indirectly of course) the various diseases that he or his fellow-men may have.

H. M. H.

## ARTIFICIAL INDUCTION OF PHAGOCYTOSIS IN THE TREATMENT OF INFECTION.

The prevention of infection is still the most formidable problem with which surgery must contend. This problem was, for a time, attacked chiefly by devising methods to remove or kill by toxic means the offending source. The results of these efforts are known to all. The ideal antiseptic, that is, one that can be applied to human tissues in sufficient quantity to kill the germ without injuring the host, is still to be discovered—if, indeed, it ever will be.

It occurred to workers in this field that perhaps the problem could be attacked from the opposite direction—namely, by attempting to increase the powers of the human organism to withstand bacterial infection. Fortunately, much work had already been done to give investigators clues to the methods to be pursued. Indeed, the most recent efforts to obtain these results are based on one of the earliest theories concerning body resistance, the phagocytic theory of Metschinkoff This theory is too familiar to require description; it will be merely necessary to say that Metschukoff and others showed that in the reaction to germ invasion certain cells of the body, known as phagocytes, of which the white corpuscles of the blood are the predominant element, act as scavengers of the bacteria, devour them and render them innocuous. An obvious conclusion would therefore be to artificially increase these phagocytes, so that the chances of overcoming infection could be correspondingly augmented. We know of many substances that promote exudation of the white blood cells by chemotaxis; for example, ordinary salt solution, aleuronat, turpentine, the nucleins and normal sera. Mikulicz was among the first to suggest the use of one of these substances as prophylactics against infection. He advocated the intraperitoneal injection of nucleinic acid before performing a laparotomy. Despite the weight of his authority and his apparently favorable reports, the suggestion has never been met with much enthusiasm.

Attention is again attracted to this form of procedure by the recent reports of Petit (*Medical Record,* June 22, 1907), and Chantemesse (Paris letter, *British Medical Journal,* June 22, 1907). Petit relates a large series of cases in which sterilized horse serum was used for the purpose of inducing leucocytosis both to prevent and to cure infection. He found experimentally that this medium produced the most active leucocytosis, and was less toxic to man than any other phagocytic excitant. In the abdomen it is injected in doses of 30 c.cm. Gauze soaked in the serum is used as a dressing in the interior of the uterus or for ordinary wounds. Petit asserts that burns heal more rapidly under such a dressing than under any other form. Chantemesse reports the use of subcutaneous injections of nucleiante of soda as a prophylactic and as a means of treatment of peritonitis, and relates cases of typhoid perforations that appear to have been favorably influenced by this procedure.

Manifestly, it will be difficult to decide upon the merits of this so-called phagocytic treatment of infections for a long time, because of the proverbial fallacy of the therapeutic *"Post hoc ergo propter hoc,"* argument. A comparative study, under *uniform conditions,* of not hundreds but thousands of cases is necessary before any conclusion can be reached. E. M.

# Surgical Suggestions.

A condition of euphoria is often seen in serious cases of peritonitis and should not be taken as a sign of beginning recovery.

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In many cases of shock, a venous infusion will more often save life than dallying with stimulants which merely, in the end, serve to tire out the heart.

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An easy way to straighten out a probe that has been much bent and twisted is to roll it under the foot on an even floor.

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A neuralgic pain in the region of the ear, should suggest a careful examination of the teeth for a possible caries or alveolar abscess.

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Placing the skin sutures in the scalp obliquely will often control hemorrhage from a wound as well as will ligating separate vessels.

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One should inquire carefully for the history of the application of carbolic acid to a wound, especially of the finger or toe, when a gangrene with a distinct line of demarkation has developed.

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If a patient presents himself with a painless cellulitis of the finger or hand, it is necessary to make a careful examination for the possible presence of syringomyelia.

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An exquisitely tender swelling situated just above the sterno-clavicular articulation may be due to the perforation of the esophagus by a foreign body. If there are evidence of acute laryngitis, with edema of the arytenoid cartilages, the cause may be a perichondritis of one of the tracheal rings or the cricoid cartilage.

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Sudden, marked rise of temperature a few days after an operation for appendicitis, especially if attended by chills, may mean thrombosis of the portal vein or multiple abscesses of the liver.

# Book Reviews.

**A Manual of Surgery** for Students and Physicians. By FRANCIS T. STEWART, M.D., Professor of Surgery, Philadelphia Polyclinic; Associate in Surgery, Jefferson Medical College; Surgeon to the Germantown Hospital, etc. Duodecimo; 778 pages; 504 illustrations; limp leather binding. Philadelphia: P. BLAKISTON'S SON & Co., 1907. Price, $3.50 net.

We find in this volume the newest facts in surgery succinctly stated and arranged in a manner convenient for the student's purpose and for quick reference by the practitioner.

The author states in his preface that "the chief desire has been to set down concisely and completely those facts which the student must know, and to make such suggestions in diagnosis and treatment as will best aid the physician in his daily practice." He has wisely omitted, therefore, all references to historical and bibliographical matters.

The book is divided into thirty-one chapters, each, with a few exceptions, dealing with a single subject. However, "Diagnosis and the Roentgen Ray" are scantily dealt with in less than fifteen pages. Again, in the third chapter, entitled "Bacteriology," one expects to hear a word about the common microorganisms associated with surgical diseases. But these are grossly omitted, a poor classification of bacteria being given, with an explanation of serum therapeutics and a few words on disinfection and sterilization. One has to turn to Chapter VIII, on "Suppuration," to learn that there are such organisms as streptococci and staphylococci.

The chapters on bandaging, on the ligation of arteries, on nerve surgery, on fractures, on abdominal operations, especially hernia, and on amputations are excellent. The text in most cases is well illustrated by excellent photographs and drawings, many of which are from original sources. The colored plates, taken from Moulin, showing the relations of the various important arteries, are especially to be commended.

It is to be regretted that so useful a manual was not provided with a more serviceable and dignified binding.

**Five Hundred Surgical Suggestions.** *Practical Brevities in Surgical Diagnosis and Treatment.* By WALTER M. BRICKNER, B.S., M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York; Editor-in-Chief, AMERICAN JOURNAL OF SURGERY, and ELI MOSCHCOWITZ, A.B., M.D., Assistant Physician, Mount Sinai Hospital Dispensary, New York; Associate Editor, AMERICAN JOURNAL OF SURGERY. *Second Series.* Duodecimo; 112 pages. New York: SURGERY PUBLISHING CO., 92 William St., 1907. Price, $1.00.

The first edition of "Surgical Suggestions" was quickly exhausted. The attractive little volume was most favorably received, and its contents have been reprinted again and again by medical journals all over the country.

In this second series all the surgical suggestions of the first issue have been incorporated, and as many more, making a total of about five hundred terse, useful "therapeutic hints and diagnostic wrinkles." Several new topics have been thus introduced and the old ones much expanded. An index is provided. The paragraphs are based on personal experiences, and many of them on original observations. Many of them are bits of information that are not to be found in the text-books. We do not believe that even an experienced surgeon will fail to find among these five hundred suggestions some hints that will repay him for the leisure hour spent in reading this small manual. And to those who have not enjoyed many years of active surgical work, five hundred practical, epigrammatic, surgical dicta will surely prove immensely helpful. The internist is concerned in the diagnosis of surgical and borderline affections, and to him, also, may be commended the many diagnostic hints between the covers of this little book.

As before, the publication has been prepared in a manner worthy of its contents. It is a pocket manual de luxe! —printed in attractive Cheltenham type, on antique India

tint paper, with marginal headings and subheads in contrasting ink, and with an artistic binding of heavy cloth, gold-lettered.

**Manual of the Diseases of the Eye** for Students and General Practitioners. By CHARLES H. MAY, M.D., formerly Chief of Clinic and Instructor in Ophthalmology, N. Y. College of Physicians and Surgeons; Ophthalmic Surgeon to the City Hospitals, Randall's Island, N. Y.; Adjunct Ophthalmic Surgeon to Mt. Sinai Hospital, N. Y., etc. *Fifth Edition*, revised. 12mo; 391 pages; 362 illustrations, including 62 colored figures on 22 plates. New York: WM. WOOD & Co., 1907. Price, $2.00.

This manual has met with remarkable success. The preceding editions underwent several reprints; the work has been translated into many languages; and it is to-day the favorite text-book in a very large number of colleges, here and abroad.

Dr. May had been teaching ophthalmology to medical students for ten years when he began the preparation of the book for which both his pedagogic experience and an excellent power of literary expression well fitted him.

Complete within itself and more comprehensive than compends and quiz-books, the author has kept his work within the strict limits of a student's manual, despite the temptation afforded by its tremendous success to expand it beyond the purpose for which it was conceived.

This edition shows some alterations in the text. A few of the illustrations have been changed, and a colored plate has been added showing the fundus in diabetic retinitis and in amaurotic family idiocy.

**Die Verwundungen durch die Modernen Kriegsfeuerwaffen, ihre Prognose und Therapie im Felde.** (*Wounds Arising from Modern Firearms, Their Prognosis and Treatment in the Field*). By Stabsarzt DR. GRAF in Düsseldorf, and DR. HILDEBANDT in Berlin. Volume II. Special Part. Octavo; 570 pages; 180 illustrations. Berlin: AUGUST HIRSCHWALD, 1907.

The first volume, dealing with general considerations, was reviewed in the AMERICAN JOURNAL OF SURGERY, August, 1905. In that review we ventured the opinion that if the second volume upheld the high standard of the first, these two volumes should prove to be one of the most important contributions to military surgery that have appeared in recent years. We are glad to state that our expectations have been fulfilled.

This volume deals with wounds of different parts of the body, beginning with the head and ending with those of the extremity. In addition to the statistics of the wars cited in the first volume, the authors have largely increased the value of the second volume by being enabled to study the rich mass of statistics and the experiences derived from the Russo-Japanese war. A very attractive feature of this work is its clear, succinct style, and its systematic arrangement. It is profusely illustrated.

# Progress in Surgery.

## A Résumé of Recent Literature.

**Hypoparathyreosis, Status Parathyreoprivus, and Transplantation of the Parathyroid Glands.** W. S. HALSTED, Baltimore. *Americal Journal of Medical Sciences*, July, 1907.

Halsted desires to apply the above terminology to the state of individuals suffering from partial or complete loss of the parathyroid glands. In partial loss no tetany develops, in complete loss it does and may prove fatal. In a secondary operation on a patient with Grave's disease the author evidently removed too much of or impaired the circulation of the parathyroids. In consequence this patient had attacks of numbness in various superficial parts, described by her as waves of numbness or lifelessness. She looked alarmingly ill, and lost weight. There was no Chvostek or Trousseau symptom. The ingestion of six dried parathyroids of beeves every three hours afforded immediate relief. Until the present time parathyroids have had to be given to keep her in even comparative comfort. Her nervous system, however, is wrecked. The number of cases of tetany following removal of goiter has alarmingly increased in the last few years since the operation has become more common. Even leaving behind the posterior capsule (Mayo) or part of the thyroid gland, has not prevented this accident, as the epithelial glands vary greatly in their situation or, if not removed, are harmed by the tying of the thyroid vessels.

Halsted, like Payr, has tried thyroid and parathyroid implantation in the spleen. A small pocket is made in the spleen and small pieces of parathyroid tissue with minute slices of the thyroid are impaled on fine silk and anchored in the bottom of the splenic wound. Payr reports successful cases. Halsted feels inclined to try this transplantation in the patient in question. It appears that operative injury to the parathyroids is unavoidable in many cases of radical thyroidectomy. Dried parathyroids are very unpalatable and the fresh glands are not always to be obtained.

**A Case of Fatal Hemolysis Following Direct Transfusion of Blood by Arterio-Venous Anastomosis.** WM. PEPPER and VERNER NISBET, Philadelphia. *Journal of the American Medical Association*, August 3, 1907.

Pepper and Nisbet give the history of a rather puzzling case of hemorrhagic disease, in which direct arteriovenous transfusion was performed on two separate occasions. On the first occasion the blood (wife's) was allowed to transfuse for a little more than an hour and a half, and the patient, who had apparently been rapidly sinking, showed marked improvement. There was a suggestion of hemolysis in the presence of urobilin in the urine, but this had nearly disappeared when the second arteriovenous anastomosis was made with another person two days later. After the second transfusion the condition changed rapidly for the worse; there was marked evidence of hemolysis—bloody urine, jaundice, high temperature, etc. The patient failed rapidly and died within five days. Full details of the blood count are given. The impression is given that possibly the first transfusion may in some manner have caused the formation of hemolytic bodies, which, after the second transfusion, found abundance of vulnerable corpuscles. While Crile and others have shown the probable safety of transfusion in post-hemorrhagic conditions, the authors think this experience indicates a danger in certain pathologic conditions and suggests caution until we are in possession of greater knowledge. Nevertheless the possibility of benefit, they say, may justify transfusion in apparently desperate cases.

**The Treatment of Abscesses by Puncture and Disinfection without Incision and Drainage.** DEW. STETTEN, New York. *Journal of the American Medical Association*, May 11, 1907.

After disinfection of the skin the abscess cavity is punctured with a large trocar or pointed scalpel, irrigated with 1-1000 bichlorid of mercury solution and distended with 5-10 per cent. iodoform-glycerin solution. Over the abscess a wet dressing and pressure bandage are applied. If necessary the procedure is repeated once or twice more. Forty-five cases have been treated with excellent result. Tuberculous gland abscesses alone did not respond favorably to treatment by this method.

**Severe Burn of Top of Head at Seven Months of Age, Followed by Necrosis of Entire Osseous Cap of Cranium.** W. W. KEEN. *Annals of Surgery*, May, 1907.

Keen reports a case in which an infant seven months of age fell on its head into a partly burning wood fire, remaining there from 20-30 minutes. As a result of this accident, six months later the entire top of the head sloughed off, including a large part of the frontal bone, both parietal bones and the squamous part of the right temporal bone. The dura, covered with granulations, was laid bare; in the course of a year the skin had reformed, but the scar constantly broke down and rehealed at intervals. After the accident convulsions set in at increasingly frequent intervals, until they reached

the number of 400 in a year. The boy was normal in other respects until he was about 11 years old, when the epileptic attacks increased, he became stupid and forgot what he had previously learned. When seen by Keen at the age of 14, a deep furrow at the top of the head was noted. The gap in the bone had markedly decreased in size since the accident (8 x 5 cm. from 17 x 11 cm.) The convulsions were general, no other nervous symptoms, but marked impairment of intelligence and apathy. The author performed, in two sittings, a complete linear craniotomy, the line of bone section between 5-7 cm. above the ear. Through several small incisions the scalp was mobilized, and by means of a rougeur, subcutaneously applied, the entire calvarium was mobilized. The superior longitudinal sinus anteriorly was accidently ruptured, and caused such a profuse hemorrhage, that part of the operation had to be postponed. At the second session due precautions were taken, and the posterior portion of the superior longitudinal sinus caused no trouble. In all eight incisions through the skin were made. After the operation the epileptic seizures became less frequent and intelligence has slowly improved, but on the whole, although two years have elapsed, no really marked benefit has resulted.

**The Pathology and Treatment of Tumors of the Jaws.** FREDERICK EVE, London. *British Medical Journal*, June 29, 1907.

The majority of tumors of the jaws, known under the name of "epulis," are myeloid sarcomata. They spring from the periosteum and are of a low grade of malignancy. Eve emphasizes the necessity of removing the neighboring teeth and of wide resection. Of 34 tumors of the jaw observed by the author, 13 were sarcomata, 11 carcinomata, and seven were malignant tumors, probably arising from embryonic dental structures. One was an osteoma, one a myxo-fibroma and one an endothelioma. Eve goes into the pathology of the various forms somewhat fully, especially in regard to the embryonic tumors. The author then proceeds to the operative treatment. The chief causes of death after operations for removal of tumors of the jaw have been septic lung infections and hemorrhage, primary and secondary. To obviate these, Eve has been in the habit for years of performing preliminary ligation of the external carotid and laryngotomy. The former procedure also possesses the advantage that it enables the operation to remove any glands in the neck that may have been secondarily affected. Of 12 resections of the upper jaw done by the author in the past six years he has had but two deaths, or 16.6 per cent. Eve describes the technical difficulties and his own procedure in removing the superior maxilla. The only detail that is worthy of note is the employment of the Gigli saw for division of the bone.

**Cervical Fistula Following Suppuration in a Patent Thyroglossal Duct.** M. G. SEELIG, St. Louis. *Surgery, Gynecology and Obstetrics*, May, 1907.

Seelig describes the occurrence of a small phlegmon of the neck, in a woman of thirty years, which was due to infection of a thyroglossal duct. Incision relieved the acute symptoms, but a fistula developed. Ten weeks later the entire duct was dissected out. The author explains that it is necessary to free the opening of the fistula with a small collar of surrounding skin, and then by means of traction on this mobilized part it is easy to expose and make plainly visible the extent and course of the entire structure while dissecting. Careful serial sections and reconstruction in wax shows the numerous diverticula in the duct wall, and the consequent futility of attempting to obliterate the structure by injections of caustics.

**The Medical and Surgical Aspects of Perforating Typhoid Ulcers.** R. H. HARTE, Philadelphia. *Boston Medical and Surgical Journal*, July 18, 1907.

The author offers the following conclusions:—

1. Perforation of the bowel in typhoid fever is a much more common condition than is generally supposed, being responsible for about one death in every three cases.

2. The most common time of perforation is between the fourteenth and twenty-first days. It occurs in all grades of severity, from the ambulatory to the hemorrhagic type, and does not seem to be any more common in the hemorrhagic than in the milder types.

3. The ileum is the most frequent site of perforation, usually within 12 to 18 inches of the ileocecal valve. The next most frequent sites are the appendix and the cecum.

4. Pain of some kind is present in 75 per cent. of all cases. In 50 per cent. of the cases the onset is sudden and severe and of increasing intensity, localizing itself to a special zone. In 20 per cent. of the cases the pain is of slow onset, not localized, with general distribution. In some cases no pain is complained of and the usual symptoms of perforation are absent.

5. Tenderness and rigidity are present to a certain extent in all cases. The latter is a most valuable sign, and it is rarely wanting, except in patients with unusually large and pendulous abdomens.

6. When perforation is suspected the temperature should be taken every hour; only in this way can definite conclusions be drawn with regard to any marked variation in this symptom.

7. Distention is a late symptom, usually not making its appearance until some hours after the perforation has occurred. The obliteration of the liver dulness is not regarded as a reliable sign.

8. The study of the leucocytes is of little aid, although occasionally their increase may make the diagnosis more positive. The differential count is of no practical value.

9. Before a positive diagnosis is made, pain caused by a pleurisy, pneumonia, cholecystitis, acute gastro-intestinal indigestion, iliac thrombosis, appendicitis, peritonitis, the passage of a renal calculus, distended urinary bladder, or even a hemorrhagic exudate into the abdominal muscles, must be carefully considered. Any of these conditions may cause symptoms similar to those caused by intestinal perforation.

10. Nature may occasionally close one or more perforations, but the only rational procedure where perforation occurs is surgical intervention. No case is too desperate for an attempt, as it has not infrequently been noted that the mild cases succumb and the more desperate ones recover.

11. In cases of doubt, where the symptoms point to perforation, the safest procedure is to operate. As a rule, cases operated on and no perforation found seem rather to be benefited than otherwise by the operation.

**Mistaken Diagnosis in Cases of Typhoid Perforation.** C. L. SCUDDER, Boston. *Boston Medical and Surgical Journal.*

Instances of mistaken diagnosis fall into three groups. 1. Those in which no lesion is discoverable. 2. Those in which the lesion does not involve the peritoneum. 3. Those in which the lesion is found within the abdomen, involving the peritoneum. The author quotes cases belonging to all three groups. To the second group belong cases of pneumonia, gastritis, enterocolitis and of hemorrhage, of Zenker's degeneration of the adominal muscles (beginning with hemorrhages into the muscle) and distended urinary bladder. In the third group, infections and perforations of the gall-bladder play a large rôle. Cases are also noted of ovarian cyst infections and one of strangulation of Meckel's diverticulum. Femoral and iliac thrombosis have also been reported. The author mentions among other misleading conditions, softened splenic infarcts, peritonitis, abscesses of the bladder wall, abscess of the liver, and appendicitis. He reports in extenso a case of rupture of an old pyosalpinx with a fresh infection by the typhoid bacillus, in which the symptoms simulated those of perforation. Salpingectomy was performed and the patient recovered.

**Subcutaneous Rupture of the Spleen.** ELLSWORTH ELIOT, New York. *New York Medical Journal*, July 13, 1907.

Eliot goes into the diagnostic and therapeutic considerations rather fully. In regard to the diagnosis, he lays most stress on the muscular rigidity and the dulness or flatness in the flanks. The question of rigidity is of essential importance in diagnosticating between fracture of the ribs alone or fracture plus rupture of the spleen. "If the lower part of the costal arch is the site of fracture or dislocation the eleventh and twelfth ribs are not usually

involved, and inasmuch as they are not connected with the costal arch, pressure against them will not intensify the existing pain or meet with any decided resistance; the reverse, however, is found to be the case if in addition to the damaged arch rupture of the spleen has taken place." The author also describes a sign of hemorrhage which he has noted for many years and which he has found to be of some value. The end of a stethoscope is closely applied to the abdominal wall, and is then quickly but gently depressed toward the abdominal cavity. In the presence of blood a friction sound is heard.

Eliot prefers an incision parallel to the outer border of the rectus above the umbilicus, supplemented by a second incision extending from its upper extremity outward along the costal margin. This permits of easy access to the splenic region and to the abdominal cavity. He regards splenectomy as the best method of treating hemorrhages of the spleen. In both cases which the author reports, the pedicle of the spleen was so broad that he feared ligature and therefore left the clamps *in situ;* these also acted as drains. Removal of the clamps at the end of two and three days, respectively, was not attended by any disturbance. He believes that drainage should be employed in every case because of the possibility of injury to the tail of the pancreas.

**Cyst of the Mesentery.** E. A. VANDER VEER, Albany. *New York State Journal of Medicine,* August, 1907.

The patient was an Italian, 30 years old. For four years he had complained of pain in the epigastrium and left hypochondrium with distress after eating. He had also noted a tumor on the left side of the abdomen. On examination a freely movable mass having all the physical appearances of a floating spleen was noted in the left hypochondrium. At the operation a cyst of the mesentery, about the size of an orange, was found. This and the neighboring small intestine to the distance of about twenty inches, were removed. The patient recovered. The cyst was of the chylous variety.

**A Soluble Bobbin for Intestinal Anastomosis.** J. H. CUNNINGHAM, and H. W. BAKER, Boston. *Boston Medical and Surgical Journal,* August 15, 1907.

The author reviews the various methods of intestinal anastomosis by mechanical aids, to all of which he raises the usual objections. While simple suture is an excellent method and rapid enough in expert hands, there is no question that suture with the aid of a mechanical device can be performed more quickly than without such aid. The author recommends bobbins of special design made of maccaroni. The large size commercial maccaroni may also be used, cut into cylinders three inches long by three-quarters of an inch in diameter. Maccaroni possesses the advantages that it can be sterilized by dry heat and that it is entirely digested within twenty-four hours. The authors have made experimental observations with satisfactory results.

**Etiological Factors of Gonorrheal Arthritis.** H. W. SMITH, Manila. *Interstate Medical Journal,* June, 1907.

From a study of his cases, the author concludes as follows:—

1. Vesiculitis is probably not often the focus of absorption from which arthritis arises. The suggested treatment is therefore irrational; the incidental sterilization of the individual and the severity of the operation are grave considerations making the treatment serious out of proportion to the gravity of the disease; and vesiculitis, which may occur in the course of any gonorrhea, whether or not believed to be the source of arthritis, can be cured promptly by simple methods.

2. Arthritis in the male is probably due to ulcerations in posterior urethra by which systemic infection is made possible. The prevention and cure of the arthritis depend on the early adoption of treatment directed to the urethral foci and the conditions favoring their persistence.

3. In the female, the failure of arthritis to develop when the infection is limited to the external genitals makes it probable that in them absorption is from an area homologous with the deep urethra of the male.

4. Rarely, other sources must be allowed in both sexes.

**A Study of the Early Conditions of Osteomyelitis in Young Children by the Roentgen Ray.** T. M. ROTCH, Boston, and A. W. GEORGE, Boston. *Archives of Pediatrics,* July, 1907.

These authors have found the x-rays to be of great value in the diagnosis of osteomyelitis in children, especially the acute forms. The changes noted by the authors are the following: In early cases, where the principal pathological change is in the periosteum, the latter shows thickening and bulges away from the bone; the line of periosteum is also less distinctly seen. When the infection is in the marrow, there appear one or more shadows, varying in size from a pinhead to several times that size. There is found an increased area of radiability in which the bone structure is being destroyed and absorption of lime salts is apparently taking place. The authors report four cases in which the x-rays proved of great service in

**Dislocation of a Cartilage Ring of the Trachea, Causing Loss of Voice.** S. B. MUNCASTER, Washington. *Maryland Medical Journal,* July, 1907.

This is another interesting and rare post-anesthetic complication. The patient was a young woman who presented herself at Muncaster's office with a voice of foghorn quality and her speech could not be understood. She had lost her voice after an operation (nephropexy) performed some time before. The author found a small swelling to the left side of the trachea just below the larynx. With firm pressure the ring was pushed back into place, whereupon her normal voice was restored.

**Separation of the Acetabular Epiphysis of the Femur: Its Relation to Adolescent Coxa Vara.** P. W. G. SARGENT, London, and H. A. KISCH, London. *Lancet,* July 6, 1907.

The separation is usually diagnosed after some comparatively trivial injury to the hip joint which leads to a skiagraph being taken. In six years the authors have seen 10 cases. All were males and the average was 15.9 years. Two classes of injury may be differentiated. 1. Those in which there is only rotation on an horizontal anteroposterior axis. 2. The rotation is on both a horizontal and a vertical axis. In the first group the symptoms and disability are slight. The treatment consists in wrenching under an anesthetic and immobilizing in the abducted position for two or three months. The prognosis is excellent. In the second group the symptoms are more severe. Treatment is the same but the chances of reducing the dislocation are less. If reduction is impossible, the neck must be screwed or nailed to the epiphysis. The prognosis is worse than in the first class. If a separated epiphysis remains untreated a caxa vara results. The view is generally now held that adolescent coxa vara is a condition almost always due to previous separation of the epiphysis. The authors therefore urge the need of immediately skiagraphing the hip joint in all cases of slight limp or aching about the hip joint in patients between the ages of 12 and 18 years.

**The Treatment of Rigid Flat-foot. Excision of the Scaphoid.** A. T. LEGG, Boston. *Boston Medical and Surgical Journal,* June 6, 1907.

By the term "rigid" flat-foot, the author refers to cases in which the arch has disappeared with resulting downward displacement of the scaphoid bone and secondary alterations in the shape of the tarsal bones. Such cases cannot be relieved by the use of plates.

In early cases, much benefit may be obtained by forcible manipulation or the use of the Thomas wrench and subsequent retention of the corrected position in plaster of Paris. In the more advanced cases, Legg recommends excision of the scaphoid. A curved incision, convexity downwards, is made over the scaphoid; the connecting ligaments are divided and the bone is removed. The tendons of the peronei and, in some instances, the tendons of the tibialis anticus, the extensor proprius hallucis and extensor longus digitorum, must be divided in order to

fully correct the valgus. The foot is then encased in plaster of Paris for three to four weeks. Massage, manipulation and exercises are valuable in the after-treatment and plates may be omitted after five or six months. The author has done this operation 13 times with satisfactory end results.

**The Relations of Ovarian Cysts to Abdominal and Pelvic Pain.** *The Significance of Abdominal and Pelvic Pain in Patients with Ovarian Cysts; as Determined by Observations Made During the Removal of the Latter Under Local Anesthesia.* J. A. SAMPSON, Albany. *Surgery, Gynecology and Obstetrics,* June, 1907.

Following the observations of Lennander, the author tried to determine the local pain occasioned by intra-abdominal manipulations, local anesthesia being used only so far as to render the abdominal incision painless. In the ten cases he reports the parietal peritoneum was always very sensitive; the omentum and intestine insensitive. The walls of ovarian cysts were insensitive, but traction on their pedicles caused at first localized, if increased diffuse pain, followed by nausea. The sensitiveness of ovaries and tubes varies greatly; apparently in older patients near or past the menopause pelvic sensibility is decreased. Infection limited to a cyst causes no pain, but if the inflammation spreads to adjacent sensitive structures pain results.

In conclusion Sampson says that abdominal or pelvic pain due to ovarian cysts indicates, either secondary changes in the cysts involving some sensitive nearby structures, or the presence of some other condition independent of the cyst. The principal causes of pain are traction on or twisting of the pedicle, or traction on the parietal peritoneum from adhesions.

**The Tuberculous Pregnant Woman from the Standpoint of the Physician** (*Das tuberkulöse Weib in der Schwangerschaft und der Arzt*). G. HEIMANN, Charlottenburg. *Medizinische Klinik,* May 12, 1907.

Obstetricians and general practitioners express diametrically opposite opinions as to the indications in tubercular pregnant women. The former, on the whole, advocate non-interference, except in specially acute cases; the latter desire to interrupt the pregnancy in nearly all instances. In general pregnancy, labor and the puerperium cause an increase in the tuberculous process. Statistics in 328 cases show increase in 73 ner cent., while a mortality of 46 per cent. was noted in a collection of 148 cases. The influence of pregnancy is rarely favorable, negative in a few cases, and bad in the most. The prognosis in individual cases is most uncertain. The unfavorable symptoms usually appear toward the end of the pregnancy. While early induced abortion avoids the dangers, induction of labor exerts no favorable influence on the tuberculosis. Therefore if severe symptoms develop late during the gravidity, we are quite helpless, and have allowed the favorable period for interference to pass by. Even large experience does not enable the physician to form a definite opinion as to the prognosis.

Induction of an abortion under the above conditions is, of course, not illegal, yet it demands a definite decision which some physicians hesitate to make. A large number of statistics compiled by Weinberg, covering all the cases occurring in the city of Stuttgart from 1873-1902, shows that 68 per cent. of children, whose mothers died of tuberculosis within one year post partem, died within the first year of life, while of the children, from tuberculous mothers, who died in the puerperium, nearly 79 per cent. succumbed. If we take into consideration that spontaneous abortion is nearly double as common among the tubercular than among healthy women, likewise stillbirth, the poor prognosis for these infants is further emphasized. The general practitioner also sees in the wife the mistress of the hearth. It is his duty to warn against marriage, or against conception, when tuberculous women decide to marry or have done so. Again the physician owes a certain responsibility to the commonwealth in order to reduce the already huge number of actively tubercular beings and prevent the increase of hereditarily predisposed children. The author concludes that in every tubercular pregnant woman early induced abortion is indicated. In exceptional cases the particular desire of the mother may prevail. It must be definitely proven, however, that the disease is tuberculosis, and, of course, the abortion must be entrusted to competent hands.

**Sterility in the Male, Its Causes and Surgical Treatment.** F. R. HAGNER, and H. G. FULLER, Washington. *Medical Record,* August 10, 1907.

After enumerating the causes of sterility in the male, the authors discuss the most frequent cause, bilateral gonorrheal epididymitis. This brings about occlusion of the globulus minor and vas deferens, preventing the passage of semen through the normal channels. In order to restore the continuity, Martin some years ago suggested an operation whereby an anastomosis is made between the globus major and the vas deferens. This operation is carried out, briefly, as follows: After an appropriate incision the vas deference is opened for a distance of about half an inch opposite the level of the globus major. A corresponding elliptical piece of the globus major is then removed. An anastomosis is then made by suturing the edges of both incisions with fine silver wire sutures. The author reports a patient with azoosperma on whom this operation was performed. One month later spermatozoa reappeared in the semen.

**Concerning Hemorrhages After Nephrolithotomy.** (*Ueber Blutungen nach Nephrolithotomie.*) H. NEUHÄUSER, Berlin. *Deutsche Medizinische Wochenschrift,* July 11, 1907.

The author does not refer to the hematuria that occurs consistently after every nephrolithotomy and that disappears in a number of days, but to severe continued hemorrhages or such as appear after the urine has otherwise apparently cleared up. In 131 operations performed at Israel's clinic in Berlin, this accident occurred in 12 cases, or 9 per cent. Neuhäuser gives a number of case histories. The cause of the late hemorrhages is obscure. The only treatment is tamponade.

**A Simple Dry Method for Disinfecting the Skin** (*Ueber eine einfache, trockene Entkeimungsmethode der menschlichen Haut*). WEDERHAKE, Düsseldorf. *Zentralblatt für Chirurgie,* June 8, 1907.

With ordinary methods absence of bacteria can be obtained in about 50 per cent.; with the iodin-benzin method in about 70 per cent. Iodin, paraffin tetrachlorcarbonate gives approximately the same result, but the paraffin either melts or peels off from the hands. To overcome the drawbacks of rubber gloves Wederhake experimented with rubber solutions. For five minutes the hands are washed (without previous use of soap and water) in a solution of iodin 1, tetrachlorcarbonate (tetrachlorkohlenstoff) 1,000. The hands are then covered with a layer of the special rubber solution prepared by Degen and Kuth. The solution is poured into the palms of the hands and then carefully spread over the entire surfaces of the hands by a washing movement. The solution is aseptic and antiseptic as it contains iodin. The covering is strong, elastic but not sticky, and will remain until removed by some solvent for rubber.

[This method is similar to that devised by John B. Murphy and E. von Hermann, *Journal A. M. A.,* September 17, 1904.]

**Iodin as an Antidote in Carbolic Acid Poisoning.** JOHN MABERLY, London. *Lancet,* August 3, 1907.

Maberly has made practical use of an old empirical and chemical observation, namely, the antagonism between carbolic acid and iodin. He reports three cases of carbolic acid poisoning, in which relief was almost promptly obtained after the administration of iodin in solution. The author employed the tincture of iodin diluted in water, in repeated doses. The author has not employed it in external phenol burns, but there seems to be no reason why its use in this connection should not be tried. Personal observations on the skin will show the antidotal effects of the two poisons very strikingly.